THE ECONOMIC JOURNAL

DECEMBER, 1913

THE PURE THEORY OF UTILITY CURVES.

INTRODUCTION.

THE object of the following investigations is to clear up certain theoretical points which cannot be dealt with precisely by the ordinary diagrams. Part I. deals with the apparatus to be employed. In the demand curves, used in discussing the exchange of aggregate quantities of goods against utility or money or other goods, the ordinate represents the aggregate sacrificed and the abscissa the aggregate acquired. These curves may also be regarded as the locus of points where the straight lines from the origin, representing the various possible ratios of exchange, touch constant utility curves—a constant utility curve being such that all the bargains represented by points on it would yield the same net utility. Hence we can sometimes get a more precise knowledge of what is involved in drawing a demand curve in a particular way by *going behind* the demand curve, as it were, and considering its relation to the constant utility curves. The underlying significance of the apparatus introduced in Part I. depends on a modification of this idea. Instead of considering the net utility of an *exchange*, we consider the resultant utility obtained from the acquisition of two commodities which both contribute to the utility positively. This gives rise to two new kinds of demand curve; one for the case in which the total expenditure on the two commodities varies while their prices remain constant, the other for the case in which the total expenditure is fixed while the price of *one* of the commodities varies. The first of these new demand curves enables problems to be attacked diagrammatically, in which the marginal utility of money need not be assumed constant. In order to interpret the meaning of the various shapes

which these curves can assume, we investigate their relation to the constant utility curves, upon which, as in the former case, they ultimately depend.

In Part II. the analytical conditions which govern the shape of the constant utility curves are elucidated. Criteria are given for distinguishing between three types of the resulting demand curves, and precise definitions are introduced for the terms "complementary" and "competitive" as applied to commodities.

In Part III. the two kinds of demand curve defined above are further discussed, particularly the case where the prices of the commodities are constant and the total expenditure on them varies. It is found possible to analyse the case in which increased total expenditure *diminishes* the amount bought of one of the commodities, as well as the standard case in which more of both commodities is bought when there is more to spend. Similarly, when the demand curve is reached, for which one of the commodities varies in price while the total expenditure is fixed, we can analyse the case in which an increased price leads to an *increase* of the amount of the commodity bought (*i.e.*, Giffen's paradox relating to the expenditure of certain classes on wheat). Incidentally, it is found possible to give a more precise definition of the marginal utility of money than that commonly employed.

In Part IV. the problem of more than two variables is attacked; and the question of the maximum product (or utility) derivable from the expenditure of a given sum on n factors (or commodities) is discussed. The general conditions for a true maximum are then investigated. This is, perhaps, rather of mathematical than of strictly economic interest; but it serves to round off what would otherwise be incomplete.

Part I.

§ 1. For the purpose of raising certain economic problems, a modification of Professor Edgeworth's "indifference curves" is here employed.

In Edgeworth's curves the co-ordinates of any point represent two variable quantities, one of which is acquired and the other is sacrificed in return for the former. The acquisition yields utility, the sacrifice disutility. The net utility thus increases with increase of acquisition or with decrease of sacrifice. The properties of Edgeworth's curves are summarised in § 2.

§ 2. As the diagrams have to be limited to *two* dimensions, we cannot represent by any third co-ordinate the variation in the

measure of the net utility, arising out of the acquisition and sacrifice taken together. This difficulty is met by constructing curves of constant utility. These are such that the net utility for bargains represented by all the different points on any *one* curve is the same.

Thus if x measures the amount acquired and z the amount sacrificed, the net utility for the point P, whose co-ordinates are x, z, has a value depending on the amounts represented by these co-ordinates. And the locus of all points, yielding the same net utility as P, forms the constant utility curve through P.

The constant utility curve U_0 which passes through the origin O is that of *zero-utility—i.e.*, for all points along this curve the sacrifice of z balances the acquisition of x, so as to yield neither

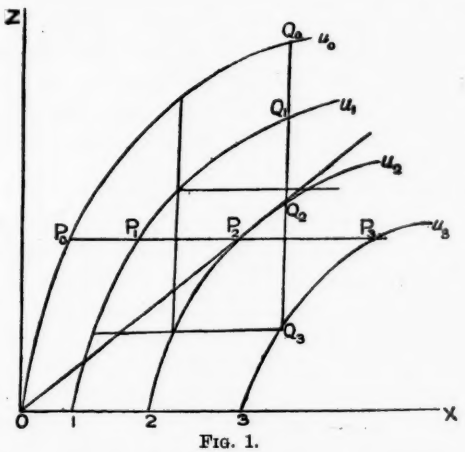


FIG. 1.

more nor less net utility than if no sacrifice and no acquisition had been incurred. For all points along the curve U_1, which passes through the point 1 (on x), the net utility is such as would be yielded by an acquisition, $x=\overline{01}$, if no sacrifice were incurred. Along U_2, which passes through the point 2, the net utility is equal to that yielded by $x=\overline{012}$, if no sacrifice were incurred; and so on. (See Fig. 1.)

In the standard case :—

(*a*) In order to obtain *equal* additional increments of net utility we require continually increasing increments of acquisition or continually decreasing increments of sacrifice.

Thus the lengths $P_0\,P_1$, $P_1\,P_2$, $P_2\,P_3$, &c., increase; also the lengths $Q_0\,Q_1$, $Q_1\,Q_2$, $Q_2\,Q_3$, &c., increase.

(*b*) Between any two utility curves the x distances increase as we move upwards, while the z distances decrease as we move rightwards.

(*c*) The curves are concave to x, convex to z.

(*d*) The curves become flatter as we move rightwards along any horizontal line or upwards along any vertical line.

Suppose, now, that x is offered us in return for z; and that we can acquire x by sacrificing z on certain given terms; that is, by giving z for x at a fixed ratio. The locus of points, for which the ratio of z to x is constant, is a straight line through the origin. Any such straight line may, therefore, be called a Price-Line. When the ratio of exchange is determined for us, we shall obviously maximise our net utility by closing our bargain at the point where the price-line, representing the ratio of exchange, *touches* one of the utility-curves.

If, after we have agreed to acquire x (say) in return for z, we are offered a further amount on more favourable terms, we shall again pass to a position where the line representing the new price, drawn from our former resting-place, touches another utility-curve.

And so on.

The crooked line $OC_1\ C_2\ C_3$ . . . (see Fig. 2) represents the course of a price-line involving changes in the terms on which we can acquire x in return for z.

Now consider the other party to the transaction who sacrifices x in order to acquire z. The general character of *his* utility curves will be the same as that of the first party with x and z interchanged. Hence, if the two parties make a succession of contracts with one another *on alterable terms*, a crooked price-line will represent their transactions, in which the conclusion of each contract is represented by the point where the price-line (representing the terms of the current contract) drawn from the point representing the conclusion of the previous contract *touches* a utility-curve of *one* of the two parties earlier than one of the *other*. Further, as long as the next section lies *between* the two utility curves, further exchanges are made, since they add to the utility of both parties; but, when finally the new section of the price-line touches both the utility curves simultaneously, exchange ceases. (See Fig. 2.)

The construction of the ordinary supply or demand curves is based on the assumption that the whole exchange is transacted on *unaltered* terms. This is a practically legitimate assumption in the case of frequently recurrent exchanges; that is, when there

is a *continual* demand and supply for "consumed" commodities. These curves may be called "Offer" curves. There are two ways of constructing such curves, both of which represent precisely the same facts. The more familiar plan is to make the ordinate y stand for "Price," *i.e.*, for the ratio of z to x, where z and x are the total quantities exchanged. The less familiar plan (which is here throughout adopted) is to use as co-ordinates the total quantities z and x themselves. Now, the connection between an "offer" curve, and the series of constant utility curves (for the party making the offer) can be explained as follows: The "offer" curve is the locus of points where the straight lines *from the*

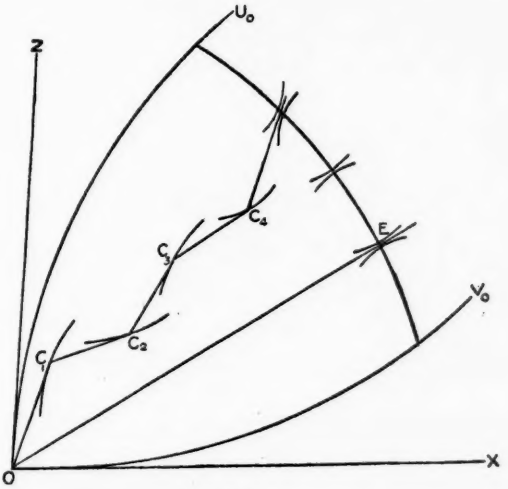


FIG. 2.

origin, representing the various possible ratios of exchange, touch one of the constant utility curves. Thus, where the demand-curve cuts the supply-curve, the utility curves of the two parties have a common tangent *which passes through the origin*. This tangent represents an *unaltered* rate of exchange. In all cases, transactions cease at a point where the two utility curves *touch*. The speciality of the equilibrium, under conditions where the whole exchange is made on unaltered terms, is that this common tangent passes straight through the origin. (See Fig. 2.)

On the other hand, if one party (say, he who is acquiring x by sacrifice of z) has control over the production, then the terminus of exchange is the point where the *supply-curve* (instead of the

price-line) *touches* one of his utility curves. This occurs, for example, when a person supplies his own needs by his own labour. (See Fig. 3.)

§ 3. The modification of Edgeworth's diagrams, which is here proposed, is in effect equivalent to turning them upside down. This procedure answers the following purposes :—First, it enables us to deal naturally with cases in which two quantities contribute *positively*—instead of one positively and the other negatively—to the resultant utility. Secondly, it can be applied by analogy to the case in which *any number* of variables contribute to utility or to production. Thirdly, it is specially available for the case in which the monetary resources of the consumer have (for the purposes of the problem in hand) a *fixed limit*.

The immediate results of this transformation are :—

(1) That the utility curves are *convex* to both axes, instead of

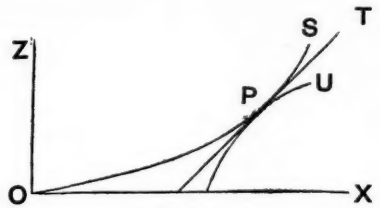


FIG. 3.

being convex to the sacrifice axis and concave to the acquisition axis.

(2) That the values of the two co-ordinates vary along a utility curve *in opposite senses*, instead of in the same sense.

(3) That the price-lines *cut the two axes* instead of starting from the origin.

(4) That the price-lines may be made to vary, not only in direction, but also *in their abscissæ*.

Thus the accompanying diagram shows how three Price-Lines P_1T_1, P_2T_2, P_3T_3 may touch three utility-curves at the respective points P_1, P_2, P_3. (See Fig. 4.)

Thus let ξ, ζ represent prices of x, z; and μ the amount of money expended on them. Then the price-lines are represented by the equations

$$x\xi + z\zeta = \mu,$$

i.e.

$$\frac{x}{\mu/\xi} + \frac{z}{\mu/\zeta} = 1.$$

The abscissa OT along $Ox = \mu/\xi$; *i.e.*, the amount of x which could be bought for money μ.

The abscissa Ot along $Oz = \mu/\zeta$; *i.e.*, the amount of z which could be bought for money μ.

Thus any point on tPT represents the amounts of x and of z that might be bought, when the price of x is ξ, that of z is ζ, and the amount spent on the two together is μ.

Provided we assume that the utility curves descend convexly, it is obvious that the resultant utility is a *maximum* where this price-line *touches* a utility-curve.

Again, where two price-lines, such as P_1T_1 and P_2T_2, are parallel, we represent constant values of ξ and ζ with varying

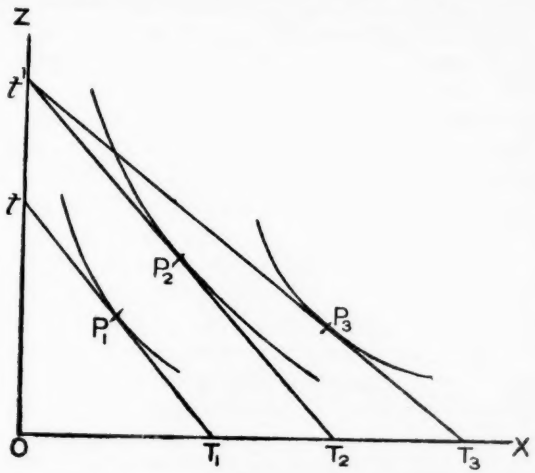


FIG. 4.

values of μ : the ratio of variation being given by the ratio of OT_2 to OT_1.

Where two price-lines, such as P_2T_2 and P_3T_3, cut on the axis of z at the same point t', we represent constant values of ζ and μ with varying values of ξ: the ratio of variation being given (inversely) by the ratio of OT_3 to OT_2.

In the figure given, a rise in money expended such as to shift the point of maximum utility from P_1 to P_2 leads to an increase in the purchase both of x and of z; and a fall in the price of x such as to cause a shift from P_2 to P_3 leads to an increase in the purchase of x and a decrease in that of z.

In the former case the money expended has increased, without changes in the prices; in the latter, the price of x has fallen, while the price of z and the total expenditure have remained unaltered.

This illustration shows how we may construct two kinds of demand-curves : (*a*) that in which the total money expended varies while the prices of the commodities are constant, as from P_1 to P_2; (*b*) that in which the price of *one* commodity (say x) varies, while the total expenditure is constant and the prices of other commodities are constant.

A curve drawn through P_1 and P_2, &c., will represent the former; a curve drawn through P_2 and P_3 the latter. The former kind of demand-curve may be called a varying *expenditure* curve; the second, a varying *price* curve. In both cases all other relevant quantities, potentially variable, are taken as constant.

§ 4. The character of the varying expenditure curve will be considered at length in Part II. From it the characteristics of the varying price curve can be conveniently deduced.

The principal problems to be considered are :—

(1) What precise conditions are involved by our assumption, that the utility curves "descend convexly," which is required if the tangent solution for the price-line is to yield a true maximum. [See § 9.]

(2) Upon what special conditions an increase or a decrease in one or other of the amounts bought depends for changes in the position of the price-line. [See §§ 15, 16, 19, 20.]

Before passing on to these problems, it is worth while to point out that the diagram measures only the quantities x and z. There are no lines in the figure which measure the utility itself. The several utility-curves are arranged in a scale of increasing value as we pass to the right and above; and thus the "distance" (measured arbitrarily) from one curve to another "indicates" (without measuring) the increase in utility. But this impossibility of measurement does not affect any economic problem. Neither does economics need to know the marginal (rate of) utility of a commodity. What is needed is a representation of the *ratio* of one marginal utility to another. In fact, this ratio is precisely represented by the *slope* at any point of the utility-curve.

Thus the sole mathematical datum is summed up in the fact that the ratio of the marginal utility of x to that of z at the point (x, z) is equal to the ratio of the abscissa on z of the tangent to the utility-curve through (x, z) to its abscissa on x.

Moreover, just as we can indicate (without measuring) the total utility (say) at P_2 by the distance from the origin of the curve through P_2, and thus exhibit the fact that at P_2 the utility is intermediate between that at P_1 and that at P_3; so we can *indicate* the different kinds of *Surplus* Utility. A surplus utility, in general, means the excess of the actual utility over what might

have been obtained if the individual, under the same objective conditions, had freely chosen to act in some uneconomic way.

What it *usually* means more particularly seems to be as follows: Having a given amount of money to expend on various commodities, and the prices of these commodities being such as they are, the consumer is supposed to maximise his utility by spending his money on certain quantities of each of these commodities. If therefore, at the given prices, he were to spend *all* his money on all *but one of* those commodities in the most useful way, he would procure *less* utility than if he included this one. The difference of utility procured by these two courses of conduct is the (integral) surplus utility actually derived from the commodity singled out. The general problem of maximising utility is applicable just because there *is* this surplus.

In the diagram (see Fig. 4) the surplus utility (say) at P_2, due to the inclusion of x in his purchases, is indicated by the "distance" between the utility-curve through P_2 and the utility-curve drawn through t' (where $x=o$ for the same money expenditure). The convexly descending shape of the utility-curves shows that the utility at t' is less than that at P_2. And the *degree* of this surplus is indicated by some line drawn *from* the curve through t' *to* the curve through P_2. To indicate this differential utility, it would be theoretically most convenient to draw (from the origin) a line through points, on the successive curves, where the tangents are throughout parallel to one another. But the sections—between

FIG. 5.

any two curves—of the *different* lines (corresponding to the different directions of the systems of parallel tangents) would not necessarily be proportional to one another.

Before entering upon the analytical discussion of Part II., we may examine Figs. 5 and 6, which illustrate the purport of this section. In these figures, small bits of the successive con-

stant utility-curves are drawn where they touch the varying price-lines. In Fig. 5 the demand-curve is exhibited which depends on varying expenditure, with the prices of x and of z constant. In Fig. 6 the demand-curve is exhibited which depends on variation in the price of z alone. In both figures the increasing power of purchase (and, hence, the increase of utility) involves

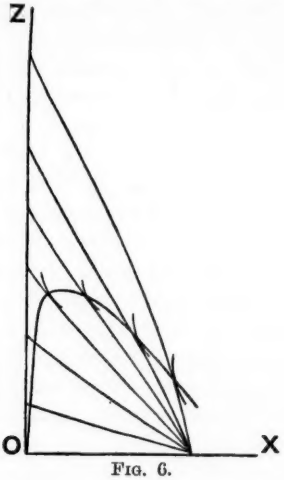


FIG. 6.

at first an increase both of x and of z, and *afterwards* an increase of x with a decrease of z. In this way, the solution of the two chief problems above mentioned is shown to the eye.

PART II.

In this Part, we shall confine ourselves, in order to be able to use diagrammatic representation, to the cases in which the consumer's utility (u) is a function of *two* quantities only, x and z.

We shall assume two characteristics of this function, and shall shew in § 9 that, of these two characteristics, the first proves the curve to be *descending to the right*, the second proves it to be *convex* to the two axes.

§ 5. The first assumption is that any increment of x or of z increases u.

i.e. $\frac{du}{dx}$ and $\frac{du}{dz}$ are both positive. . . . . (1)

Before coming to the second assumption some new symbols must be introduced. The standard case is that in which an increase of any factor causes a decrease in its marginal utility. Hence, as a rule, $\frac{d^2u}{dx^2}$ and $\frac{d^2u}{dz^2}$ are both *negative*.

It would, therefore, be convenient to use the following symbols for measuring the *relative* changes in $\frac{du}{dx}$ or $\frac{du}{dz}$ due to changes in x or z :—

Change in $\frac{du}{dx}$, due to $dx \equiv \tau_{11} = -\frac{d^2u}{dx^2} \div \left(\frac{du}{dx} \cdot \frac{du}{dx}\right)$.

Change in $\frac{du}{dz}$, due to $dz \equiv \tau_{22} = -\frac{d^2u}{dz^2} \div \left(\frac{du}{dz} \cdot \frac{du}{dz}\right)$.

Change in $\frac{du}{dz}$, due to $dx \equiv \tau_{12} = -\frac{d^2u}{dxdz} \div \left(\frac{du}{dz} \cdot \frac{du}{dx}\right)$.

Change in $\frac{du}{dx}$, due to $dz \equiv \tau_{21} = -\frac{d^2u}{dzdx} \div \left(\frac{du}{dx} \cdot \frac{du}{dz}\right)$.

Again, in the standard case, a change in the amount of x would produce a greater relative change in the marginal utility of x than in that of z; and a change in z would produce a greater relative change in the marginal utility of z than in that of x. That is, usually,

$$\tau_{11} > \tau_{12} \text{ and } \tau_{22} > \tau_{21}.$$

However, these standard relations do not hold universally. It may be that a change in z, as well as a change in x, produces a greater relative change in the marginal utility of x than in that of z.

That is, it may be that $\tau_{21} > \tau_{22}$ as well as $\tau_{11} > \tau_{12}$.

This leads up to the second postulate. Whatever relations there may be otherwise, we shall lay down the following restrictive assumption :—

Although a change in z as well as a change in x may produce a greater relative change in the marginal utility of x than in the marginal utility of z, yet such excess as is due to a change in x (measured relatively to the marginal utility of x) will invariably be greater than such excess as is due to a change in z (measured relatively to the marginal utility of z).

This assumption, expressed analytically, is that

$$\tau_{11} - \tau_{12} > \tau_{21} - \tau_{22}$$

i.e. $$\tau_{11} + \tau_{22} - 2\tau_{12} \textit{ is positive} \quad . \quad . \quad . \quad . \quad . \quad (2)$$

§ 6. In dealing with two variables, it is convenient to make the following substitutions :—

$$V \equiv \frac{du}{dx} \div \frac{du}{dz}; \quad W \equiv \frac{du}{dz} \div \frac{du}{dx},$$

so that $V.W = 1$

Then

$$\frac{dV}{dx}\cdot\left(\frac{du}{dz}\right)^2=\frac{du}{dz}\cdot\frac{d^2u}{dx^2}-\frac{du}{dx}\cdot\frac{d^2u}{dxdz},$$

$$\frac{dV}{dz}\cdot\left(\frac{du}{dz}\right)^2=\frac{du}{dz}\cdot\frac{d^2u}{dxdz}-\frac{du}{dx}\cdot\frac{d^2u}{dz^2}$$

Thus $\frac{dV}{dx}$ has the sign of $\tau_{12}-\tau_{11}$.

$\frac{dV}{dz}$ has the sign of $\tau_{22}-\tau_{12}$.

Similarly, $\frac{dW}{dz}$ has the sign of $\tau_{12}-\tau_{22}$,

and $\frac{dW}{dx}$ has the sign of $\tau_{11}-\tau_{12}$.

That is, in the standard case,

$\frac{dV}{dx}$ and $\frac{dW}{dz}$ are *negative*.

By algebraical substitution, it may be shewn that condition (2) may be written

$$V\frac{dV}{dz}-\frac{dV}{dx}>0,$$

or, using the symbols $\frac{dV}{dx}$ and $\frac{dW}{dz}$,

$$\frac{V^2}{W}\cdot\frac{dW}{dz}+\frac{dV}{dx}<0.$$

This last expression shows, symmetrically, that $\frac{dV}{dx}$ and $\frac{dW}{dz}$ cannot both be *positive*, the standard case being that in which they are both *negative*.

§ 7. The course of the demand-curves will fall into three divisions depending essentially upon the signs of $\frac{dV}{dx}$ and $\frac{dW}{dz}$. The standard or *mediate* section is where $\frac{dV}{dx}$ and $\frac{dW}{dz}$ are both *negative*: the section in which z is more urgently needed than x is where $\frac{dW}{dz}$ is positive $\left(\frac{dV}{dx}\text{ being negative}\right)$; and that in which x is more urgently needed than z is where $\frac{dV}{dx}$ is positive $\left(\frac{dW}{dz}\text{ being negative}\right)$.

For in speaking of z as more urgently needed, we imply that the amount of z is comparatively *small*; and, hence, that the marginal utility of z is comparatively *great*. Hence the proportional changes produced in the marginal utility of z (due to

changes in the amounts either of x or of z) are comparatively *small*.

That is, τ_{22} is small and τ_{11} is great;

i. e. $\tau_{11} > \tau_{12}$ and $\tau_{22} < \tau_{12}$,

i. e. $\frac{dV}{dx}$ is negative, but $\frac{dW}{dz}$ is positive.

§ 8. Two extreme cases are of interest.

In Fig. 7 (*a*) the curves of utility degenerate into a series of parallel straight lines. Here we may call x and z strictly or absolutely *competitive*: *i.e.*, any given amount of x gives the same utility as a proportional amount of z. These curves have *minimum* curvature.

In Fig. 7 (*b*) the curves of utility degenerate into a pair of straight lines parallel to the axes terminated at a series of points

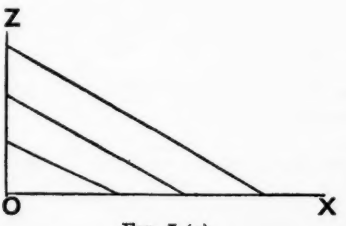


FIG. 7 (*a*).

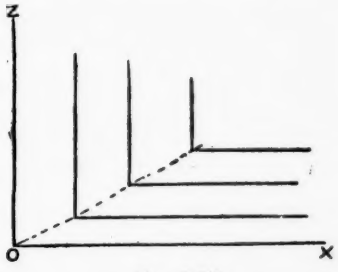


FIG. 7 (*b*).

along a line through the origin. Here we may call x and z strictly or absolutely *Complementary*; *i.e.*, when x and z are acquired together in a certain fixed proportion, no increment of utility is obtained by increasing one amount unless we also increase the other. These curves have *maximum* curvature (at their principal point).

As at any point in the curves the curvature approximates to one or other of these limiting cases, we may speak of the factors x and z as being roughly competitive or complementary.

A more exact definition of competitive and complementary may be suggested.

Since the general condition (2) is that

$$2\frac{d^2u}{dxdz} \div \left(\frac{du}{dx}\right)\left(\frac{du}{dz}\right) - \frac{d^2u}{dx^2} \div \left(\frac{du}{dx}\right)^2 - \frac{d^2u}{dz^2} \div \left(\frac{du}{dz}\right)^2 > 0,$$

therefore, $\frac{d^2u}{dxdz}$ cannot be less than both $W\frac{d^2u}{dx^2}$ and $V\frac{d^2u}{dz^2}$.

Hence, when $\frac{d^2u}{dxdz}$ lies between $W\frac{d^2u}{dx^2}$ and $V\frac{d^2u}{dz^2}$, we may say that x and z are *competitive.*

But, when $\frac{d^2u}{dxdz}$ is greater than both $W\frac{d^2u}{dx^2}$ and $V\frac{d^2u}{dz^2}$, then we may say that x and z are *complementary.*

In the former case, either $\frac{dV}{dx}$ or $\frac{dW}{dz}$ is *positive*, in the latter case $\frac{dV}{dx}$ and $\frac{dW}{dz}$ are both *negative.*

In the former case changes along the Demand Curves involve an opposite variation in x and z; in the latter the two increase or decrease together.

§ 9. We may now show how the curves constructed on these considerations will behave.

In the constant utility curve, $u=c$, we have

$$\frac{du}{dx}+\left(\frac{dz}{dx}\right)_u \cdot \frac{du}{dz}=0,$$

i.e.,

$$-\left(\frac{dz}{dx}\right)_u=\frac{du}{dx}\div\frac{du}{dz}\equiv V.$$

Thus V measures the inclination to the axis of x of the tangent to the constant-utility curve at any point.

Since, in accordance with our first assumption, $\frac{du}{dx}$ and $\frac{du}{dz}$ are both positive,

$\therefore \left(\frac{dz}{dx}\right)_u$ is *negative*; *i.e.,* the curves fall to the right.

Again,

$$-\left(\frac{d^2z}{dx^2}\right)_u=\frac{dV}{dx}+\left(\frac{dz}{dx}\right)_u \cdot \frac{dV}{dz}=\frac{dV}{dx}-V\frac{dV}{dz}.$$

Since, in accordance with our second assumption, this last expression is *negative,*

$\therefore \left(\frac{d^2z}{dx^2}\right)_u$ is *positive*; *i.e.,* the curve is throughout *convex.*

It follows that any straight line (between the axes) can touch only *one* utility curve, and only at *one* point; and that at this point the utility will be a *maximum.* [See Figs. 4, 5, 6.] The results of this section resolve the first problem of § 4.

§ 10. The condition of convexity may be written :—

$$\frac{du}{dz}\cdot\frac{dV}{dx}<\frac{du}{dx}\cdot\frac{dV}{dz} \quad \ldots\ldots\ldots (3)$$

or

$$\frac{du}{dx}\cdot\frac{dW}{dz}<\frac{du}{dz}\cdot\frac{dW}{dx} \quad \ldots\ldots\ldots (4)$$

In the *mediate* section, $\frac{dW}{dz}$ and $\frac{dV}{dx}$ are both negative, and thus $\frac{dV}{dz}$ and $\frac{dW}{dx}$ are both positive, so that the above relations are obviously satisfied.

But in the *z-urgent* section, $\frac{dW}{dz}$ $\left(\text{and } \frac{dW}{dx}\right)$ are positive, and thus $\frac{dV}{dz}$ $\left(\text{and } \frac{dV}{dx}\right)$ are negative. Hence in this case, from (3),

$$\frac{du}{dx} \cdot \left(-\frac{dV}{dz}\right) < \frac{du}{dz} \cdot \left(-\frac{dV}{dx}\right),$$

i.e.,

$$\frac{du}{dx} \div \frac{du}{dz} < \frac{dV}{dx} \div \frac{dV}{dz} \quad \ldots\ldots\ldots (5)$$

also

$$\frac{du}{dx} \div \frac{du}{dz} < \frac{dW}{dx} \div \frac{dW}{dz} \quad \ldots\ldots\ldots (6)$$

But in the *x-urgent* section, $\frac{dV}{dx}$ $\left(\text{and } \frac{dV}{dz}\right)$ are positive, and thus $\frac{dW}{dx}$ $\left(\text{and } \frac{dW}{dz}\right)$ are negative. Hence, in this case, from (4),

$$\frac{du}{dz} \cdot \left(-\frac{dW}{dx}\right) < \frac{du}{dx} \cdot \left(-\frac{dW}{dz}\right),$$

i.e.,

$$\frac{dW}{dx} \div \frac{dW}{dz} < \frac{du}{dx} \div \frac{du}{dz} \quad \ldots\ldots\ldots (7)$$

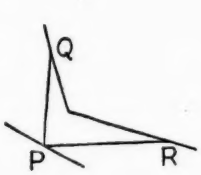
also

$$\frac{dV}{dx} \div \frac{dV}{dz} < \frac{du}{dx} \div \frac{du}{dz} \quad \ldots\ldots\ldots (8)$$

Thus the relations expressed in (7) and (8) for the *x-urgent* section are the reverse of those expressed in (5) and (6) for the *z-urgent* section.

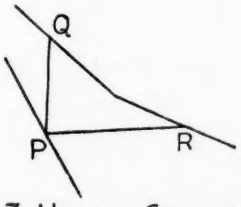
§ 11. The distinctions between the three sections may usefully be indicated by constructing adjacent utility-curves. [See Figs. 8 (*a*), (*b*), (*c*).]

ADJACENT UTILITY CURVES.



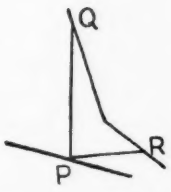
MEDIATE SECTION

FIG. 8 (*a*).



Z-URGENT SECTION

FIG. 8 (*b*).



X-URGENT SECTION

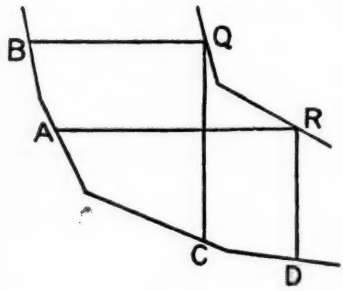
FIG. 8 (*c*).

Let Q and R be two points on a utility curve; and P a point on an adjacent curve of lower utility, where the ordinates at Q and R meet.

Draw tangents to the utility curves at P, Q and R. The slope at P may be related in one of three ways to those at Q and R.

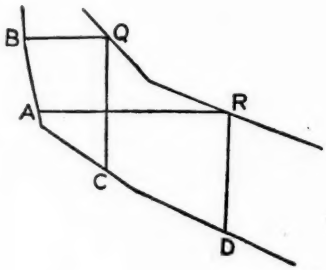
In the *mediate* case, the slope at P is intermediate between those at Q and at R.

i.e. $$\frac{dV}{dx}<0 \quad \text{and} \quad \frac{dW}{dz}<0.$$



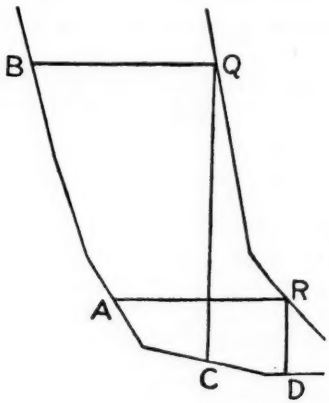
MEDIATE CASE

FIG. 9 (*a*).



Z–URGENT CASE

FIG. 9 (*b*).



X–URGENT CASE

FIG. 9 (*c*).

In the *z-urgent* case, the slope at P is steeper both than that at Q and that at R.

i.e. $$\frac{dV}{dx}<0 \quad \text{but} \quad \frac{dW}{dz}>0.$$

In the *x-urgent* case, the slope at P is flatter both than that at Q and that at R.

i.e. $$\frac{dV}{dx}>0 \text{ while } \frac{dW}{dz}<0.$$

Since the slope at Q is always steeper than that at R, the three figures represent all possible cases.

§ 12. The shapes of the curves may be still more fully shown by Figs. 9 *a*, *b*, *c* for any two utility curves not necessarily adjacent.

We draw horizontal and vertical lines between any two curves.

In the mediate case, $BQ<AR$ and $RD<CQ$,
i.e., the x-distances *decrease* as z increases,
and the z-distances *decrease* as x increases.

In the z-urgent case, $BQ<AR$ but $RD>CQ$,
i.e., the x-distances again *decrease* as z increases;
but the z-distances *increase* as x increases.

In the x-urgent case, $BQ>AR$ while $RD<CQ$,
i.e., the x-distances here *increase* as z increases;
while the z-distances *decrease* as x increases.

N.B.—If the ratio of the marginal utility of z to that of x varied only with variation of x, so that $W=f(x)$, and $\frac{dW}{dz}=0$; then, the vertical distances would be constant, or the utility curves would be parallel at the same value of x. This is the diagrammatic equivalent of the constancy ascribed to the marginal utility of *money* (z standing here for *money*).

Part III.

Money and Prices.

§ 13. Let μ be the amount of money spent on two factors x and z, whose prices are ξ and ζ respectively. Then

$$x\xi+z\zeta=\mu, \text{ i.e. } \frac{x}{\mu/\xi}+\frac{z}{\mu/\zeta}=1.$$

This straight line may be called the Price-Line.

Its intercept on the axis of x is μ/ξ : its intercept on the axis

of z is μ/ζ. The former increases as ξ decreases, the latter as ζ decreases—μ being constant.

The maximum utility is where the price-line touches a utility curve; the inclination of the tangent at any point of the utility curve is given by the ratio of $\frac{du}{dx}$ to $\frac{du}{dz}$; and the inclination of the price-line is given by the ratio of ξ to ζ.

We, therefore, may construct the following three curves of Demand :—

(1) $\frac{du}{dx} \div \frac{du}{dz} = \frac{\xi}{\zeta}$ or $\frac{du}{dz} \div \frac{du}{dx} = \frac{\zeta}{\xi}$.

(2) $\frac{du}{dx} \div \frac{du}{dz} = \frac{\mu/\zeta - z}{x}$.

(3) $\frac{du}{dz} \div \frac{du}{dx} = \frac{\mu/\xi - x}{z}$.

The first curve is to be used, when ξ and ζ are constant, and μ varies. In this case, the price-lines are a series of parallels determined by the ratio ξ to ζ (see Fig. 5).

The second curve is to be used, when μ and ζ are constant, and ξ varies. In this case, the price-lines are a series of lines through the fixed point $x=0,\ z=\mu/\zeta$.

The third curve is to be used, when μ and ξ are constant, and ζ varies. In this case, the price-lines are a series of lines through the fixed point $z=0, x=\mu/\xi$ (see Fig. 6).

The curves (1), (2), (3) may be briefly written in accordance with our former notation :—

(1) $V=\xi/\zeta$ or $W=\zeta/\xi$.
(2) $Vx+z=\mu/\zeta$.
(3) $Wz+x=\mu/\xi$.

We shall begin by considering curve (1), where $V(=\xi/\zeta)$ is constant. This discussion is given in §§ 14, 15, 16, 17. Afterwards we shall deduce the characteristics of curves (2) and (3), and compare the results obtained with those for curve (1). This discussion occupies §§ 18, 19, 20.

§ 14. Whereas in the u-constant curve we have

$$-\left(\frac{dz}{dx}\right)_u = \frac{du}{dx} \div \frac{du}{dz} \equiv V,$$

we have in the V-constant curve

$$-\left(\frac{dz}{dx}\right)_\zeta = \frac{dV}{dx} \div \frac{dV}{dz}.$$

Now, by the condition of convexity,

$$\frac{du}{dz} \cdot \frac{dV}{dx} < \frac{du}{dx} \cdot \frac{dV}{dz}.$$

In the mediate case, where $\frac{dV}{dx}$ is negative and $\frac{dV}{dz}$ is positive, we see that $\left(\frac{dz}{dx}\right)_{\xi,\zeta}$ is positive; *i.e.* along the ξ/ζ-constant curve, z and x increase together.

In the z-urgency case, where $\frac{dV}{dx}$ and $\frac{dV}{dz}$ are both negative, or in the x-urgency case, where $\frac{dV}{dx}$ and $\frac{dV}{dz}$ are both positive, $\left(\frac{dz}{dx}\right)_{\xi,\zeta}$ is negative; *i.e.* in both cases, x and z vary oppositely.

Now, we have previously shown that, where z is urgent, $\frac{dV}{dx} \div \frac{dV}{dz} > \frac{du}{dx} \div \frac{du}{dz}$ *i.e.*, the V-constant curve is *steeper* than the u-constant curve, at any point where z is urgent.

On the other hand, where x is urgent, $\frac{dV}{dx} \div \frac{dV}{dz} < \frac{du}{dx} \div \frac{du}{dz}$; *i.e.*, the V-constant curve is *flatter* than the u-constant curve at any point where x is urgent (see Fig. 5).

§ 15. We will now show how the urgency of z or of x determines the corresponding course of the V-constant curve.

We have $$\frac{du}{dx}Dx + \frac{du}{dz}Dz \equiv Du,$$

i.e., $$\frac{du}{dx} \cdot \frac{Dx}{Du} + \frac{du}{dz} \cdot \frac{Dz}{Du} \equiv 1 \quad \ldots\ldots\ldots (\alpha)$$

where $\frac{Dx}{Du}$ and $\frac{Dz}{Du}$ are total differential coefficients, derived from any relation in which x and z are determined as functions of u.

Now, along the V-constant curve, we have

$$\frac{dV}{dx}Dx + \frac{dV}{dz}Dz = 0.$$

Thus, this curve combined with $u \equiv f(x, z)$, determines x as a function of u, and z as a function of u, such that

$$\frac{dV}{dx} \cdot \frac{Dx}{Du} + \frac{dV}{dz} \cdot \frac{Dz}{Du} = 0 \quad \ldots\ldots\ldots (\beta)$$

Equations (α) and (β) determine the values of $\frac{Dx}{Du}$ and $\frac{Dz}{Du}$.

Thus

$$\left(\frac{du}{dx}\cdot\frac{dV}{dz}-\frac{du}{dz}\cdot\frac{dV}{dx}\right)\frac{Dx}{Du}=\frac{dV}{dz} \quad \ldots\ldots (\gamma)$$

$$\left(\frac{du}{dz}\cdot\frac{dV}{dx}-\frac{du}{dx}\cdot\frac{dV}{dz}\right)\frac{Dz}{Du}=\frac{dV}{dx} \quad \ldots\ldots (\delta)$$

Here the coefficient of $\frac{Dx}{Du}$ is positive, and that of $\frac{Dz}{Du}$ is negative. Hence,

$$\frac{Dx}{Du} \text{ has the sign of } \frac{dV}{dz},$$

and

$$\frac{Dz}{Du} \text{ has the sign of } -\frac{dV}{dx}.$$

Now, in the *mediate* case, $\frac{dV}{dz}$ and $-\frac{dV}{dx}$ are both *positive*; hence, here, both x and z increase with increase of utility.

In the *z-urgent* case, $\frac{dV}{dz}$ and $\frac{dV}{dx}$ are both *negative*; hence, here, x decreases and z increases with increase of utility.

In the *x-urgent* case, $\frac{dV}{dz}$ and $\frac{dV}{dx}$ are both *positive*; hence, here, x increases and z decreases with increase of utility. The results of this section solve the second of the principal problems (mentioned in § 4), for the case in which the changes in the price-line are due to changes in amount of money expended.

§ 16. The above results may be shown diagrammatically.

A glance at the curves [see Figs. 9 (*a*), (*b*), (*c*)] of varying convexities, corresponding to the three cases—mediate, z-urgent, x-urgent—will shew the course of the V-constant curve.

In the mediate case, the point in the curve $BACD$ where the tangent is parallel to Q will be to the left of C, and the point where the tangent is parallel to R will be below A.

Hence, the course of the V-curve from $BACD$ to QR will be upwards and rightwards: *i.e.*, an increase of utility will involve an increase both of x and of z.

In the z-urgent case, the point in the curve $BACD$ where the tangent is parallel to Q will be below and to the *right* of C, and the point where the tangent is parallel to R will be (far) below A.

Hence, the course of the V-curve from $BACD$ to QR will be upwards and *leftwards*: *i.e.*, an increase of utility will involve an increase (large) of z and a *decrease* of x.

In the x-urgent case, the point in the curve $BACD$ where the tangent is parallel to Q will be (far) to the left of C, and the

point where the tangent is parallel to R will be *above* and to the left of A.

Hence, the course of the V-curve from $BACD$ to QR will be *downwards* and rightwards; *i.e.*, an increase of utility will involve an increase (large) of x and a *decrease* of z.

It is also useful to note that the V-curve rises more *sharply* than the u-curves where they meet, in the z-urgent case, and less *sharply* in the x-urgent case. [See § 14.] In other words, where the u-curves cut a V-curve, the V-curve is more nearly parallel to the axis of Z when z is urgent, and more nearly parallel to the axis of X when x is urgent.

§ 17. We may repeat the explanation that the V-constant curve is to be regarded as the curve of demand for x and z jointly, when the prices of x and z are fixed, and *the amount of money expended on x and z together* is allowed to vary.

The amount of money (μ) purchases the utility (u), and thus we may speak of the price (say π) of a unit of utility. We may, therefore, write

$$x\xi + z\zeta = \mu \equiv \pi u.$$

Let us introduce the symbol ϵ as a variable depending on the nature of the function $u = f(x, y)$, such that

$$x\frac{du}{dx} + z\frac{du}{dz} \equiv \epsilon u.$$

Then, $\dfrac{\xi}{\dfrac{du}{dx}} = \dfrac{\zeta}{\dfrac{du}{dz}} = \kappa$ (say) along the V-constant curve.

$$\therefore\ \mu \equiv \pi u = \kappa\epsilon u.$$

Now, along the V-constant curve,

$$\frac{du}{dx}Dx + \frac{du}{dz}Dz = Du,$$

and

$$\xi Dx + \zeta Dz = D\mu;$$

$$\therefore\ \frac{D\mu}{Du} = \kappa.$$

i.e., $\dfrac{1}{\kappa}$ measures the marginal utility of money.

And

$$\epsilon = \frac{\mu}{u}\frac{1}{\kappa} = \frac{\mu Du}{u D\mu}.$$

[N.B.—Expressions of the form $\dfrac{zdx}{xdz}$ are of very frequent occurrence in the analytical treatment of economics (and other sciences). This form of expression corresponds to the general notion of elasticity. When x and z are such as to increase or

decrease together, and are both positive, so that $\frac{zdx}{xdz}$ is positive, the important variation in its value is according as it is greater, equal, or less than unity. It can easily be shewn that these three cases correspond, respectively, to the three cases according as $\frac{x}{z}$ increases, remains constant, or diminishes when x (or z) increases.]

Thus, ϵ may be regarded as measuring the elasticity of u in terms of money; *i.e.*, the rate at which utility increases proportionally to an increase in money.

This rate gives increasing, constant, or diminishing returns of utility, for money expended, according as ϵ is greater, equal or less than unity.

The result can obviously be extended to any number of factors purchased.

§ 18. *The Demand Curve for Variations in Price of x.*

The equation here is

$$Vx+z=\mu/\zeta.$$

where μ/ζ is constant.

This gives

$$\left(x\frac{dV}{dx}+V\right)+\left(\frac{dz}{dx}\right)_{\mu,\zeta}\left(x\frac{dV}{dz}+1\right)=0.$$

$$\therefore\ -\left(\frac{dz}{dx}\right)_{\mu,\zeta}=\frac{x\frac{dV}{dx}+V}{x\frac{dV}{dz}+1}.$$

$$\therefore\ \left(\frac{dV}{dx}\right)_{\mu,\zeta}\equiv\frac{dV}{dx}+\left(\frac{dz}{dx}\right)_{\mu,\zeta}\cdot\frac{dV}{dz}=\frac{\frac{dV}{dx}-V\frac{dV}{dz}}{x\frac{dV}{dz}+1}.$$

and

$$\left(\frac{dV}{dz}\right)_{\mu,\zeta}\equiv\frac{dV}{dz}+\left(\frac{dx}{dz}\right)_{\mu,\zeta}\cdot\frac{dV}{dx}=\frac{V\frac{dV}{dz}-\frac{dV}{dx}}{x\frac{dV}{dx}+V}.$$

§ 19. We will now show how the urgency of x or of z determines the course of the μ/ζ constant curve.

We have

$$\frac{du}{dx}\cdot\frac{Dx}{Du}+\frac{du}{dz}\cdot\frac{Dz}{Du}=1. \quad \ldots\ldots \quad (a)$$

where $\frac{Dx}{Du}$ and $\frac{Dz}{Du}$ have to satisfy the equation

$$\left(x\frac{dV}{dx}+V\right)\frac{Dx}{Du}+\left(x\frac{dV}{dz}+1\right)\frac{Dz}{Du}=0. \quad \ldots . \quad (\beta)$$

Equations (α) and (β) determine the values of $\frac{Dx}{Du}$ and $\frac{Dz}{Du}$.

Thus
$$\left(\frac{du}{dx}\cdot\frac{dV}{dz}-\frac{du}{dz}\cdot\frac{dV}{dx}\right)\frac{Dx}{Du}=\frac{dV}{dz}+\frac{1}{x} \quad \ldots . \quad (\gamma)$$

$$\left(\frac{du}{dz}\cdot\frac{dV}{dx}-\frac{du}{dx}\cdot\frac{dV}{dz}\right)\frac{Dz}{Du}=\frac{dV}{dx}+\frac{V}{x} \quad \ldots . \quad (\delta)$$

Here the coefficient of $\frac{Dx}{Du}$ is positive, and that of $\frac{Dz}{Du}$ is negative.

Thus $\frac{Dx}{Du}$ is positive or negative, according as $\frac{dV}{dz}>$ or $<-\frac{1}{x}$,

and $\frac{Dz}{Du}$ is positive or negative, according as $\frac{dV}{dx}<$ or $>-\frac{V}{x}$.

In this way we learn where the curve moves upwards or downwards, rightwards or leftwards.

It should be noticed that, by aid of the formulæ in § 18, the relations (γ) and (δ) may be shortly written

$$\frac{Du}{Dx}=-x\frac{du}{dz}\cdot\left(\frac{dV}{dx}\right)_{\mu,\zeta} \text{ and } \frac{Du}{Dz}=-x\frac{du}{dz}\cdot\left(\frac{dV}{dz}\right)_{\mu,\zeta}.$$

§ 20. We may compare the results of § 19 with those of § 15; and thus discover the relations between the course of the μ/ζ-constant curve and the ξ/ζ-constant curve.

In the latter, Dx becomes negative when $\frac{dV}{dz}$ is negative, but in the former, Dx becomes negative only when $\frac{dV}{dz}<-\frac{1}{x}$. That is, a higher degree of relative urgency of z is required to lead to a diminution in the amount of x demanded, where merely the price of x falls, than when merely the joint expenditure on x and z increases. Thus, when $\frac{dV}{dz}$ lies between 0 and $-1/x$, the ξ/ζ-constant curve is moving *leftwards*, but the μ/ζ-curve still moves *rightwards*. When $\frac{dV}{dz}<-\frac{1}{x}$, both curves are moving leftwards, and when $\frac{dV}{dz}>0$, both curves are moving rightwards.

Again, in the ξ/ζ-constant curve, Dz becomes negative only when $\frac{dV}{dx}$ is *positive*, but in the μ/ζ-constant curve, Dz is negative

as soon as $\frac{dV}{dx} > -\frac{V}{x}$. That is, a lower degree of relative urgency of x is required to lead to a diminution in the amount of z demanded, when merely the price of x falls, than when merely the joint expenditure on x and z increases. Thus, when $\frac{dV}{dx}$ lies between 0 and $-\frac{V}{x}$, the ξ/ζ-constant curve is moving upwards, but the μ/ζ-constant curve is moving *downwards*. When $\frac{dV}{dx} > 0$, both curves are moving downwards, and when $\frac{dV}{dx} < -\frac{V}{x}$ both curves are moving upwards.

For instance, starting from $x=0$, in the curve $Vx+z=\mu/\zeta$, we have $z=\mu/\zeta$. This is obviously an absolute maximum for z, since V and x are positive. As V diminishes along this curve, correspondingly to the cheapening of x, the curve becomes finally asymptotic to the horizontal line $z=\mu/\zeta$. But it must begin by falling from its initial maximum height $z=\mu/\zeta$. In other words, when x is very small, and z very large, the demand for x must be very urgent relatively to that for z. Hence x begins by increasing at the expense of a rapid fall in z. If, however, the absolute need for x is soon gratified, and the need for z begins to be more felt, then z may reach its first minimum value when x is still small, after which x and z will continue to rise together. When x and z are rising together, $\frac{du}{dx}$ and $\frac{du}{dz}$ may both be presumed to be diminishing. But if, owing to a relative superabundance of x, $\frac{du}{dx}$ rapidly diminishes while $\frac{du}{dz}$ is only slowly diminishing, V would diminish very rapidly if x continued to increase. A *gradual* diminution of V might therefore be effected by decreasing x (and thus increasing $\frac{du}{dx}$).

PART IV.

§ 21. To find the maximum product obtained at a given expense (μ), when the prices of the factors are given.

Let $p \equiv f(a, b, c \ldots)$ (n-factors)

where $$a\alpha+b\beta+c\gamma+ \ldots . =\mu,$$

$$Dp=0 \text{ gives } \frac{df}{da}Da+\frac{df}{db}Db+\frac{df}{dc}Dc+ \ldots . =0,$$

$$D\mu=0 \text{ gives } \alpha Da+\beta Db+\gamma Dc+ \ldots . =0.$$

This gives

$$\left(\kappa\frac{df}{da}-a\right)Da+\left(\kappa\frac{df}{db}-\beta\right)Db+\ \ldots\ =0,$$

for arbitrary increments Da, Db . . . .

Hence κ is determined by the n-equations,

$$\frac{a}{df/da}=\frac{\beta}{df/db}=\ \ldots\ =\kappa.$$

These n-equations, together with

$$a\alpha+b\beta+\ \ldots\ =\mu,$$

determine the $(n+1)$ quantities κ, a, b, c. . . .

§ 22. Let f be such that

$$a\frac{dp}{da}+b\frac{dp}{db}+c\frac{dp}{dc}+\ \ldots\ =\epsilon p.$$

where, in general, ϵ is a variable function of a, b, c . . . . , and may be called the *elasticity* of production.

Then, from above,

$$\mu=a\alpha+b\beta+c\gamma+\ \ldots\ =\epsilon\kappa p$$

$$\therefore\ \kappa=\frac{\mu}{\epsilon p}.$$

Or, if π = cost of unit of p, so that $\mu\equiv\pi p$, $\kappa=\frac{\pi}{\epsilon}$.

Thus $\kappa\gtrless\pi$, according as $\epsilon\lessgtr 1$.

§ 23. Now the price of an agent varies with his own "marginal efficiency" combined with his contribution to the general efficiency. Thus

$$a=\frac{d\mu}{da}=\frac{d(\pi p)}{da}=\pi\frac{dp}{da}+p\frac{d\pi}{da}$$

$$=\frac{\pi}{\kappa}a+p\frac{d\pi}{da}=\epsilon a+p\frac{d\pi}{da},$$

$$\therefore\ a(1-\epsilon)=p\frac{d\pi}{da}.$$

Thus we have two sets of equivalent equations

$$\frac{a}{dp/da}=\frac{\beta}{dp/db}=\ \ldots\ =\frac{\pi}{\epsilon}\equiv\frac{\mu}{\epsilon p},$$

$$\frac{a}{d\pi/da}=\frac{\beta}{d\pi/db}=\ \ldots\ =\frac{p}{1-\epsilon}\equiv\frac{\mu}{(1-\epsilon)\pi}.$$

§ 24. Eliminating a, b, c . . . . and k, the above give μ as a function of p, say $\mu=\chi(p)$.

Along this curve

$$Dp=\frac{df}{da}Da+\frac{df}{db}Db+\frac{df}{dc}Dc+ \ . \ . \ . \ .$$

$$D\mu=\alpha Da+\beta Db+\gamma Dc \ . \ . \ . \ .$$

$$\therefore \ \frac{D\mu}{Dp}\equiv\kappa=\frac{\mu}{\epsilon p},$$

$$\therefore \qquad \epsilon=\frac{\mu Dp}{pD\mu}.$$

Hence $\epsilon \gtrless 1$, according as the expense of producing p involves what may be called increasing, constant, or diminishing efficiency of money; or according as

$$a\frac{dp}{da}+b\frac{dp}{db}+c\frac{dp}{dc}+ \ . \ . \ . \ . \gtrless p$$

at the values of $a, b, c \ . \ . \ . \ .$ for which the maximum production is determined.

§ 25. We must consider the general condition that the values obtained for $a, b, c \ . \ . \ . \ .$ will give a true maximum—rather than a stationary or minimum value—for p. This will depend on the sign of the second differential of p; that is, upon

$$\frac{d^2p}{da^2}Da^2+2\frac{d^2p}{dadb}DaDb+ \ . \ . \ . \ .$$

where, since $\alpha \ . \ Da+\beta \ . \ Db+ \ . \ . \ . \ .=0$,

and α, β, &c., are proportional to $\frac{df}{da}, \frac{df}{db}$, &c.,

we must have accurately (*i.e.*, not merely to the first approximation) $\frac{dp}{da}Da+\frac{dp}{db}Db+ \ . \ . \ . \ .=0$.

We make the following abbreviations:

$$\frac{dp}{da}Da=x_1, \ \frac{dp}{db}Db=x_2, \text{ \&c,}$$

$$-\frac{d^2p}{da^2}\div\left(\frac{dp}{da}\right)^2=\tau_{11}, \qquad -\frac{d^2p}{dadb}\div\left(\frac{dp}{da}\cdot\frac{dp}{db}\right)=\tau_{12}, \text{ \&c.}$$

Then the required condition is that

$$\tau_{11}x_1^2+2\tau_{12}x_1x_2+ \ . \ . \ . \ . \text{ should be } \textit{positive},$$

where $$x_1+x_2+ \ . \ . \ . \ .=0.$$

Substituting $x_1=-(x_2+x_3+ \ . \ . \ .)$ in the quadratic, we obtain the quadratic in x_2, x_3, &c., of which the typical terms are $x_2^2(\tau_{11}+\tau_{22}-2\tau_{12})+2x_2x_3(\tau_{11}+\tau_{23}-\tau_{12}-\tau_{13})$.

The discriminant so obtained can be shown to be that of which the successive minors are

$$\begin{vmatrix} 0 & 1 \\ -1 & \tau_{11} \end{vmatrix}, \quad \begin{vmatrix} 0 & 1 & 1 \\ -1 & \tau_{11} & \tau_{12} \\ -1 & \tau_{12} & \tau_{22} \end{vmatrix}, \text{ &c.}$$

all of which must be *positive*. [N.B.—The *first* is identically positive.] Thus, there are $(n-1)$ conditions of sign, where n is the number of independent variables.

These conditions are equivalent to the statement that the "surfaces" $p \equiv f(a, b, c \ldots .)$ are in all directions *convex* to the co-ordinate axes. But there are several ways of indicating the economic significance of the result.

§ 26. We will begin by a consideration of the nature of the curve $\mu = \chi(p)$, which is analogous to a line of force cutting across the equipotential surfaces $p \equiv f(a, b, c \ldots .)$.

It is instructive to determine how much each of the factors $a, b, c \ldots .$ is increased or decreased when the expenditure μ is increased. That is, we must determine the values of the differentials $\frac{Da}{Dp}, \frac{Db}{Dp}$, &c., when μ and therefore p are increased. We shall replace $Da, Db \ldots .$ in the above by $\frac{Da}{Dp}, \frac{Db}{Dp} \ldots .$ and adopt the same abbreviations, where now we have

$$\frac{dp}{da}Da + \frac{dp}{db}Db + \ldots . = Dp,$$

thus

$$x_1 + x_2 + \ldots . = 1,$$

and

$$\frac{\alpha}{dp/da} = \frac{\beta}{dp/db} = \ldots . = \kappa = \frac{D\mu}{Dp}.$$

Then, taking the total differential of the logarithm of these equations, we have

$$\log \kappa + \log \frac{dp}{da} = \log \alpha, \text{ &c.},$$

$$\therefore \; -\frac{1}{\kappa}\frac{D\kappa}{Dp} = \left(\frac{d^2p}{da^2} \div \frac{dp}{da}\right)\frac{Da}{Dp} + \left(\frac{d^2p}{dadb} \div \frac{dp}{da}\right)\frac{Db}{Dp} + \ldots .$$

Writing $\frac{1}{\kappa}\frac{D\kappa}{Dp} = K$, the system of equations for x_1, x_2, *and* K become

$$\begin{aligned} 0 + x_1 + x_2 + x_3 + \ldots . &= 1, \\ -K + \tau_{11}x_1 + \tau_{12}x_2 + \tau_{13}x_3 + \ldots . &= 0, \\ -K + \tau_{12}x_1 + \tau_{22}x_2 + \tau_{23}x_3 + \ldots . &= 0, \\ -K + \tau_{13}x_1 + \tau_{23}x_2 + \tau_{33}x_3 + \ldots . &= 0. \end{aligned}$$

The determinant here is that which has been shown to be (with its several minors) necessarily *positive*.

It may be written $|\,0123\ldots.\,|$, corresponding to the unbordered determinant $|\,123\ldots.\,|$.

Thus K is given by the equation

$$K\times|\,0123\ldots.\,|=|\,123\ldots.\,|.$$

or rather, we must indicate the several values of K by subscripts according to the factors that are to vary. Thus

$$K_1\times\begin{vmatrix}0 & 1\\ -1 & \tau_{11}\end{vmatrix}=\tau_{11},\ i.e.,\ K_1=\tau_{11};$$

$$K_{12}\times\begin{vmatrix}0 & 1 & 1\\ -1 & \tau_{11} & \tau_{12}\\ -1 & \tau_{12} & \tau_{22}\end{vmatrix}=\begin{vmatrix}\tau_{11} & \tau_{12}\\ \tau_{12} & \tau_{22}\end{vmatrix},\ \&c.$$

The following relations can be proved,

$$K_1-K_{12}=x_2^2\cdot\frac{|\,012\,|}{|\,01\,|};$$

$$K_{12}-K_{123}=x_3^2\cdot\frac{|\,0123\,|}{|\,012\,|};$$

$$K_{123}-K_{1234}=x_4^2\cdot\frac{|\,01234\,|}{|\,0123\,|}.$$

where x_2, x_3, x_4 . . . . are the values of the last terms in the several solutions, for 2, 3, 4 . . . . variables.

Thus, it easily follows that the conditions for a *true* maximum are equivalent to the series of inequations—

$$K_1>K_{12}>K_{123}>K_{1234},\ \&c.$$

Now
$$K=\frac{1}{\kappa}\frac{D\kappa}{Dp}=\frac{D}{D\mu}\left(1\div\frac{Dp}{D\mu}\right).$$

Thus K measures the rate at which the inverse of the "marginal efficiency" of money changes. K is not necessarily positive. But the above inequations are equivalent to the economic statement that "any increase of money tends less and less to diminish its 'marginal efficiency' as the variety of factors upon which it is expended increases."

§ 27. Another elementary account can be given of the significance of the various K values.

Returning to the second total differential, we have the quadratic expression, where $\Sigma x=0$,

$$\tau_{11}x_1^2+2\tau_{12}x_1x_2+\ldots.$$

Let the various values of x be equated to $\bar{x}-\xi$. Then

$$\begin{aligned}\tau_{11}x_1^2+2\tau_{12}x_1x_2+\ldots. \equiv{}& \tau_{11}\bar{x}_1^2+2\tau_{12}\bar{x}_1\bar{x}_2+\ldots.\\ &+\tau_{11}\xi_1^2+2\tau_{12}\xi_1\xi_2+\ldots.\\ &-2\xi_1(\tau_{11}\bar{x}_1+\tau_{12}\bar{x}_2+\ldots.)\\ &-2\xi_2(\tau_{12}\bar{x}_1+\tau_{22}\bar{x}_2+\ldots.)\\ &-\ldots.\end{aligned}$$

Here $\bar{x}_1$, $\bar{x}_2$, &c., may be chosen arbitrarily, when x_1, x_2 . . . . have any given values.

Let us choose them to satisfy the equations

$$\begin{aligned} \bar{x}_1+\bar{x}_2+ \ldots . &= \Sigma\xi, \\ \tau_{11}\bar{x}_1+\tau_{12}\bar{x}_2+ \ldots . &= K\,.\,\Sigma\xi, \\ \tau_{12}\bar{x}_1+\tau_{22}\bar{x}_2+ \ldots . &= K\,.\,\Sigma\xi. \end{aligned}$$

Then, since $0=\Sigma x=\Sigma\bar{x}-\Sigma\xi$, $\therefore\ \Sigma\bar{x}=\Sigma\xi$. Thus K must have the value K_{123} . . . . (obtained before). Multiplying successively by $\bar{x}_1$, $\bar{x}_2$ . . . . and adding, we have

$$\tau_{11}\bar{x}_1^2+2\tau_{12}\bar{x}_1\bar{x}_2+ \ldots . = K\,.\,\Sigma\xi\,.\,\Sigma\bar{x}=K\,.\,(\Sigma\xi)^2.$$

Thus

$$\begin{aligned} \tau_{11}x_1^2+2\tau_{12}x_1x_2+ \ldots . &= \\ &\tau_{11}\xi_1^2+2\tau_{12}\xi_1\xi_2+ \ldots . -K(\xi_1+\xi_2+ \ldots .)^2 \\ &=(\tau_{11}-K)\xi_1^2+2(\tau_{12}-K)\xi_1\xi_2+ \ldots . \end{aligned}$$

where ξ_1 ξ_2 . . . . are unrestricted. Hence another form of the condition for a true maximum is that the series of determinants obtained from $|123 \ldots .|$ by subtracting K_{123} . . . . from each constituent must be positive. [The last of these is identically zero.]

§ 28. We may give a diagrammatic representation of an important application of this result.

Let us choose (say) r of the quantities ξ_1, ξ_2, &c., so as to satisfy

$$\left.\begin{aligned} \xi_1+ \ldots . +\xi_r &= 1 \\ -K_{1\ldots r}+\tau_{11}\xi_1+ \ldots . +\tau_{1r}\xi_r &= 0 \\ -K_{1\ldots r}+\tau_{12}\xi_1+ \ldots . +\tau_{2r}\xi_r &= 0 \end{aligned}\right\} (r+1) \text{ equations,}$$

and let ξ_{r+1}, &c., $=0$.

Then

$$\tau_{11}x_1^2+2\tau_{12}x_1x_2+ \ldots . = K_{12\ldots r}-K_{12\ldots n}.$$

In the diagram, we represent a tangent "plane" RQ at R to the production "surface."

Then, if P represents any previously obtained maximum position, the movement from P to Q will represent the maximisation obtained by using an extra increment of money on the factors corresponding to ζ, up to ξ_r; whereas the movement from P to R represents that from using the same amount of money on *all* the factors from ξ_1 to ξ_n.

The convexity of the production "surfaces" shows that the value for R is greater than that for Q; and the above equation shows that the increment of utility along the "tangent" plane,

(where $\Sigma x = 0$) is measured by the second differential value $\tau_{11}x_1^2 + 2\tau_2 x_1 x_2 + \ldots$, which must, therefore, be positive.

The difference of utility beween that at R and that at Q is the incrementally measured "*surplus*": *i.e.*, the excess value of

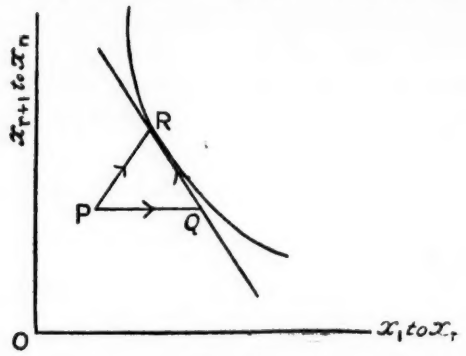


FIG. 10.

expenditure on $(\xi_{r+1} \ldots \xi_n)$ over that of the same amount expended on $(\xi_1 \ldots \xi_r)$.

On Some Special Forms of the Production Function.

§ 29. *Grouped Factors.*—The factors in production often fall into separate groups. In this case it is legitimate to maximise for one group at a time; and finally maximise for the whole. Or, we may have groups of groups which may be similarly treated.

The grouping of factors, here, means that the product is a function of functions of separate sets of factors.

The simplest case, for illustration, is that in which the product is a function of two functions of two factors each.

Thus, let $p \equiv f\{\psi(a, b), \chi(c, g)\}$,

Then

$$\frac{dp}{da} = \frac{df}{d\psi} \cdot \frac{d\psi}{da}; \quad \frac{dp}{db} = \frac{df}{d\psi} \cdot \frac{d\psi}{db};$$

$$\frac{dp}{dc} = \frac{df}{d\chi} \cdot \frac{d\chi}{dc}; \quad \frac{dp}{dg} = \frac{df}{d\chi} \cdot \frac{d\chi}{dg};$$

$$\therefore \frac{dp}{da} \div \frac{dp}{db} = \frac{d\psi}{da} \div \frac{d\psi}{db}; \quad \frac{dp}{dc} \div \frac{dp}{dg} = \frac{d\chi}{dc} \div \frac{d\chi}{dg};$$

$$\frac{d^2p}{dadc} = \frac{d^2f}{dad\chi} \cdot \frac{d\chi}{dc} = \frac{d^2f}{d\psi d\chi} \cdot \frac{d\psi}{da} \cdot \frac{d\chi}{dc};$$

$$\frac{\dfrac{d^2p}{dadc}}{\dfrac{dp}{da}\,\dfrac{dp}{dc}} = \frac{\dfrac{d^2f}{d\psi d\chi}}{\dfrac{df}{d\psi} \cdot \dfrac{df}{d\chi}}.$$

This shows that the values of τ which belong to factors in separated groups (such as a and c) are equal to one another, so that we can write

$$\tau_{ac}=\tau_{bc}=\tau_{ag}=\tau_{bg}\equiv\tau_{\psi\chi} \text{ (say).}$$

Thus we may maximise separately for ψ and χ.

For $\frac{1}{a}\frac{dp}{da}=\frac{1}{\beta}\frac{dp}{db}$ becomes $\frac{1}{a}\frac{d\psi}{da}=\frac{1}{\beta}\frac{d\psi}{db}$,

giving values depending only on the form of ψ, independently of f.

A special case of the grouping of factors, which is sometimes assumed, is that in which the function f is a simple summation; *i.e.*,

$$p\equiv\psi(a, b)+\chi(c, g.)$$

In this case we may speak of the separated groups as being independent of one another. This assumption is often permissible when p stands for the *utility* of consumption. Here, of course, the second differentials of p connecting factors in distinct groups vanish; *i.e.*, $\tau_{\psi\chi}=0$.

In the simple case $p\equiv f\{\psi(a, b), \chi(c, g)\}$ we can represent all the analytical work by diagrams in two dimensions. Thus, taking a, b as axes, we can maximise for ψ (a, b); and represent ψ by x. Then, taking c, g as axes, we can maximise for χ (c, g), and represent χ by z. And finally taking x and z as axes, we can maximise for f (x, z).

W. E. JOHNSON

THE RELATION BETWEEN THE CHANGES IN WHOLESALE AND RETAIL PRICES OF FOOD.[1]

WHILE a great deal of attention has been given to the formation of index-numbers measuring the change of wholesale prices, and while in more recent times fairly successful attempts have been made to measure the movement of some retail prices, there have been (so far as I know) no serious practical inquiries or theoretical investigations as to the nature of the relation between the two groups. I propose in this article to examine this relation in the light of available statistics.

The retail price of a commodity is influenced by, and is nearly the sum of, the wholesale price, the cost of transporting the goods from the market, warehouse, or ship, merchants' and brokers' commissions, manufacturing, more transport commissions, costs and profits of retailing and delivery, interest on the capital employed in carrying the goods from the time of wholesale purchase to the time of payment by the consumer, and (in some cases) government tax.

In the case of food the only very important manufactures are the milling of grain and the baking of flour, and the taxes are small and easily reckoned, so that the principal differences between wholesale and retail prices are attributable to interest, merchanting, transport, and retailing. Of these pure interest can hardly average more than 1 per cent. on the wholesale price for the bulk of food, which passes rapidly into consumption and for which cash payment is general. We are then left with the pure costs of distribution, that is, with transport and dealing, for food in general, and in addition with milling and baking in the case of bread, and of duties in the cases of sugar and tea.

Now let us consider the effects of a rise and of a fall in wholesale prices. We must distinguish fluctuations or short-period movements in price from long-period and steady movements. The conscious effort of the retailer is to keep prices unchanged.

[1] Based on a paper read before Section F of the British Association, 1913.

If he can secure a contract from the merchant, short movements will be entirely borne by the latter or by the brokers, part of whose economic function is to carry risks. But when the wholesale price of flour or sugar or meat rises, the retailer must either raise his price or substitute an inferior article, or make less or no profit. Now wholesale prices can move by very small percentages (say 1 per cent.), while retail prices move by jumps of 6 to 10 per cent. The retailer meets this difficulty by making less than his normal profit when the rise is less than would justify his raising his price, say ¼d., and then raising it ½d. as soon as the wholesale price goes up fractionally more; so that one month with another he makes a regular profit. If, however, the wholesale price rose fractionally and there remained, he would lose for some time and then recoup himself. As soon as we take an average of several months or several towns, the irregularities of relationship between wholesale and retail prices due to these differences of unit disappear. Sometimes when a tax is imposed or raised, or when the Press gives prominence to a rise of prices and the purchasing public is persuaded that a rise is inevitable, the retailer advances his prices prematurely and makes an extra profit; but his power to do this is strictly limited, in some cases by competition, and in all cases he must consider the elasticity of demand. Finally, a retailer can often keep his prices steady by balancing a loss on one commodity by a gain on another. On the whole, small short-period wholesale movements do not affect the purchaser at all.

Now let us consider the case of a permanent and considerable rise in the price of one commodity, while prices in general are steady. After the brokers, merchants, retailers, and customers have tried their strength in throwing the burden one on the other, retail prices settle at a higher level. Suppose that the wholesale price per 100 lbs. of some commodity before the change is 10s., the retail price 2d. per lb., or 16s. 8d. per 100, and that the difference is made up by 2s. commission (including waiting for payment) for the brokers and wholesale merchants, 2s. cost of transport, and 2s. 8d. retailer's gross profit. Now let the wholesale price rise to 15s. The cost of transport remains unchanged. There seems no reason why the dealers should or could charge more for any part of their services, except for the item of interest (at 4 per cent. for three months, less than 1d. additional), and since they benefit by not curtailing the sale, they should charge less rather than more. With them, as with the retailer, all depends on the elasticity of the demand. If the demand for

meat is more elastic than the demand for bread, there is a greater inducement for dealers in meat to reduce their commissions than for dealers in flour. If, in brief, all charge the same per unit before and after the rise, the retail price would advance to 21s. 8d. per 100, =2·6d. per unit, which the retailer would make by charging first 2½d. and then 2¾d. Now on this hypothesis the wholesale price has advanced 50 per cent. and the retail price only 30 per cent. If, on the other hand, all persons concerned charged the same percentage on cost, instead of the same price per unit, the retail price would advance by a greater percentage than the wholesale, the increment growing like a snowball. No doubt all these commissions are decided in the long run, not by what (uncombined) merchants and dealers wish to do, but by the prices they must pay and can get in competition. So far as I can see, theory points to an unchanged remuneration per unit, not to an unchanged percentage. But there is no doubt a custom in each trade, and it seems to me the question calls at once for investigation as to how in fact merchants and brokers calculate their commission. When prices are falling, the same analysis applies, except that everyone concerned will try to hold the price up and the consumer's advantage will be delayed.

As regards retailing, it often happens that the consumers can be divided into two classes, whose elasticities of demand differ one from the other. Thus, a butcher can perhaps raise his price to his day customers without much affecting the sale, but not to those in the evening. In this case the working class would suffer a smaller rise than the richer class. This consideration applies especially to the very large volume of purchases made late on Saturday evening.[1]

When, as has been the case for many years, prices and interest are rising *en masse*, much more difficult questions arise as to the effect on brokers', merchants', retailers', and manufacturers' charges. If in the long run we have simply the case of replacing a florin by half-a-crown in every transaction (wages, prices, interest), there is no problem. But if the rise occurred first in wholesale commodities and was reflected only in part in retail commodities and not at all in wages or salaries, we should have a troublesome problem, with innumerable actions and reactions, into which I have neither skill nor space to enter. I think, however, that as regards the period 1890–1912, some conjectures may be hazarded, as follows: changes in the rate of pure interest, on cash involved in handling, can hardly have made 1 per cent.

[1] See "Food Prices in London": Charity Organisation Society, 1913.

difference in price up or down; cost of transport has varied little, and efficiency of distribution has increased. Merchants, brokers, and retailers were probably able to hold back for their own benefit some part of the fall of wholesale prices during 1889–1896; during the period of rising wages till 1900, they could hand on more than the whole addition per unit; but during the stationary period of wages, 1901–1911, so far from handing on an equivalent *percentage* on the values handled, it must have been difficult to hand on the additional *cost per unit*.

The general conclusion I reach is that retail and wholesale prices should be connected by an equation of the form :—

Actual change of retail price per unit goods = *actual* change of wholesale price per corresponding unit $\times k$, where k is nearly equal to unity.

If k is equal to or not much greater than 1, this equation will result in :—

Percentage change of retail price per unit goods *is less than percentage* change of wholesale price per corresponding unit. The movement of retail price is presumably a little later than that of wholesale.

I think that we must accept retail price statistics with considerable reserve till the details of the theory now sketched have been worked out, and the necessary facts ascertained; for as will be seen from the following statistics, there is no uniformity of relation, and on the whole too much effect appears to be produced on retail by changes in wholesale prices. There can be no doubt as to the direction of the general movements, but the magnitudes of these movements cannot be regarded as certainly known.

The most adequate statistics of retail prices are of bread in relation to flour and grain. I have examined the monthly records from January, 1906, to June, 1913, as tabulated in the *Labour Gazette*, of the import and English Gazette prices of grain, and of flour as delivered from the mills, and of the mean of the predominant prices of 4 lbs. of bread obtained from nearly 170 reports from the principal towns of Great Britain. I am informed that in modern roller mills the weight of flour obtained averages less than 72 per cent. of the weight of grain, while that of stone-ground flour is 80 per cent. Taking 72 per cent., a quarter of grain yields 346 lbs. of flour. Now 346 lbs. of flour yields 500 to 550 lbs. of dough, which makes 460 to 500 lbs. of bread, the modern average being nearer the higher limit. From these data it results that a 4-lb. loaf contains 2·83 lbs. of flour, which are obtained from 3·93 lbs. of grain. During the period taken the average price of grain

(taking 5 cwt. imported with 1 cwt. home) was 8s. 1d. per cwt., of flour 11s. per cwt., and of bread 5·6d. per 4 lbs. The flour obtained from 1 cwt. of grain is thus worth very nearly the same as the grain, the value of the offal paying for the expense of milling.

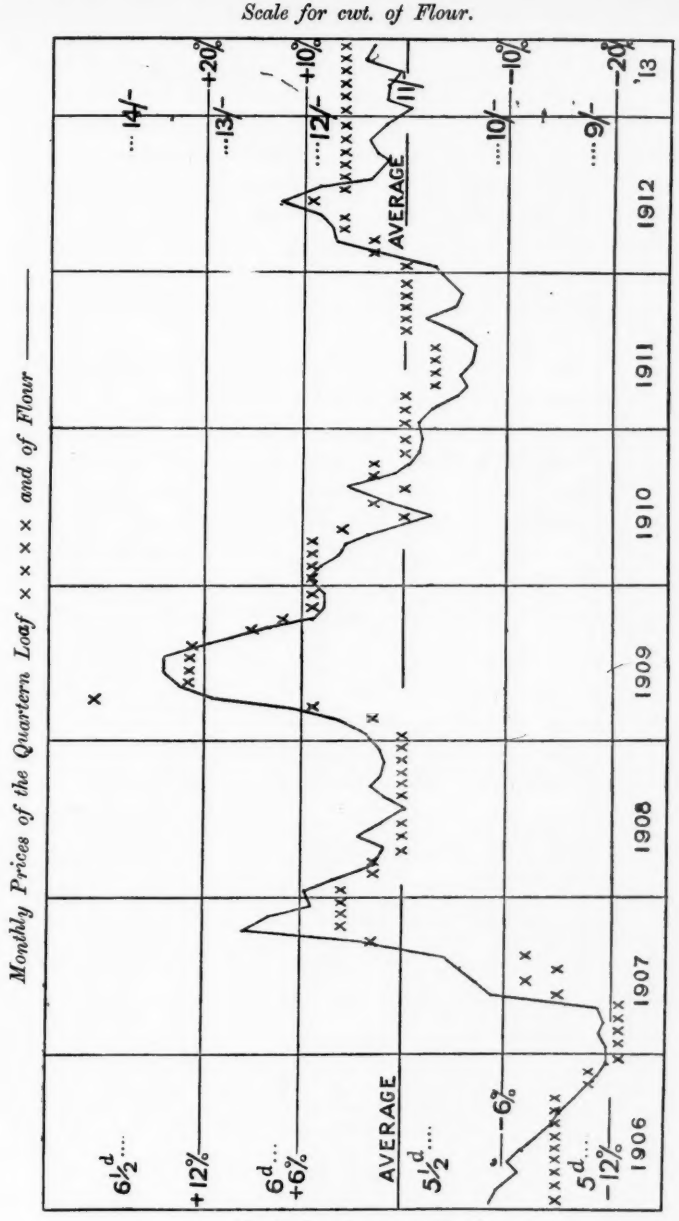
First take flour and bread. The average cost of the flour in the 4-lb. loaf was 3·33d., and therefore the average cost of transport and cost and profit of merchanting, baking, and retailing was 2·27d. If the latter costs remain constant, while the price of flour changes, we should have—

$$\text{Price of the quartern loaf} = 2{\cdot}27d. + 3{\cdot}33d. + \frac{\text{Price of flour per cwt.} - 11s.}{\text{No. of loaves per cwt.}^{1}}$$

Such relations can be examined by two methods, viz., by the comparison of the standard deviations of wholesale and retail prices, and by the coefficient of correlation between them. In the present case the standard deviation for the ninety monthly prices of the quartern loaf is 0·35d., the average price being 5·6d., and the standard deviation of the prices of a cwt. of flour is 13·58d., the average price being 11s.; for the loaf and for flour, therefore, the standard deviations are respectively 6·25 per cent. and 10·29 per cent. of the average prices; in other words, so far as deviations are concerned a change of 10 per cent. in the price of flour corresponds on the average to a change of 6·08 per cent. in the price of bread. Now 10 per cent. on the price 11s. is 0·333d. per loaf (taking 39·6 loaves to the cwt.), and 6·08 per cent. on the price 5·6d. is 0·340d. per loaf; the two numbers correspond very closely; if they were exactly equal it would mean that an addition to the price of flour was carried on unchanged to the price of bread, and that charges for making and distributing were unchanged. The diagram is drawn so that the average prices are represented by the same line, and a deviation of 10 per cent. in the price of flour is measured by the same height as one of 6 per cent. in the price of bread. The bread price on the first week-day of each month is put in the same vertical line as the flour price of the previous month. Except for the lag in the rise of the price of bread in the middle of 1907, and for the exceptionally high price in May, 1909, it is seen that the bread price keeps very close to the flour price, but changes less frequently. The bread prices, however, are only averaged to $\frac{1}{10}$th of a penny, and no change less than one-fifth of an inch on the scale is registered.

The co-efficient of correlation between these prices is 0·947.

[1] Viz. 39·6.


Scale for cwt. of Flour.
Monthly Prices of the Quartern Loaf × × × × and of Flour ——
6½d.
+12%
6d.
+6%
AVERAGE
5½d.
-6%
5d.
-12%
1906
1907
1908
1909
1910
1911
1912
'13
14/-
13/-
12/-
11/-
10/-
9/-
+20%
+10%
-10%
-20%
AVERAGE
Scale for Quartern Loaf

This coefficient measures how closely the bread price can be calculated by a linear formula from the flour price.[1] In this case, however, a slight error is introduced from the omission of the second decimal place in the bread price.

These two measurements, by comparison of standard deviations to test in what way a change in wholesale prices is carried on to retail prices, and by correlation to find how far other causes are also at work are used in the following table :—

	1.	2.	3.	4 | 5.		6.	7.
	Average retail price.	Average wholesale price.	Ratio of 1 to 2.	Standard deviations per cent. of average prices.		Ratio of 5 to 4.	Coefficient of correlation.
				Retail.	Wholesale.		
	d.	*d.*					
(*a*) Bread and flour	5·6	3·33	10 : 5·95	6·25	10·29	10 : 6·08	0·948
(*b*) Bread and grain	5·6	3·40	10 : 6·1	6·25	9·11	10 : 6·85	0·943
(*c*) Bread and grain	5·84	3·07	10 : 5·03	10·6	17·6	10 : 6·02	0·863
(*d*) Bread and grain	5·5	3·23	10 : 5·5	7·2	11·1	10 : 6·5	0·91
(*e*) Flour	1·35	1·23	10 : 9·1	9·32	10·6	10 : 8·8	0·88
(*f*) Beef ... per lb.	8·1	5·22	10 : 6·44	5·2	9·2	10 : 5·6	0·99
(*g*) Mutton ,,	9·4	6·18	10 : 6·57	6·0	11·3	10 : 5·4	0·85
(*h*) Potatoes ,,	0·735	0·398	10 : 5·41	9·7	12·6	10 : 7·7	0·69
(*i*) Bacon ,,	8·33	6·58	10 : 8·14	10·2	11·8	10 : 8·65	0·92
(*j*) Sugar ,,	1·85	1·05	10 : 5·7	11·2	14·4	10 : 7·8	0·90
(*k*) Butter ,,	13·3	11·2	10 : 9·02	3·3	5·9	10 : 5·6	0·94
(*l*) Cheese ,,	8·5	5·45	10 : 6·4	6·35	10·4	10 : 6·1	0·82
(*m*) Eggs per doz.	12·0	8·5	10 : 7·0	6·5	9·8	10 : 6·63	0·94
	s. d.	*s. d.*					
(*n*) Food budget ...	15 0	10 2	10 : 6·8	4·56	6·70	10 : 6·7	0·94

Line (*a*) in this table exhibits the numbers just discussed. Line (*b*) shows the relation between bread and grain[2] for the same ninety months; as already stated, the quartern loaf uses 3·93 lbs. of grain, and at 8s. 1d. per cwt. (the average price of grain in the period) this gives 3·40d. for the value of grain used in the loaf, as in column (2). That the flour costs slightly less than the grain is due to the fact that the value of offals was

[1] The formula in this case is—

Excess of bread price above 5·6*d.* = ·0244 of (excess of flour price above 11*s.*), where both prices are stated in pence; 0·0244 is the coefficient of correlation (viz. 0·948) multiplied by the ratio of the standard deviations (viz. 0·35 : 13·58). This equation would give the closest fit in a diagram (by method of least squares); that drawn, however, uses 0·0254 in the equation which is very nearly the same. With small correlation the difference would be considerable.

[2] Price of imported and home grown wheat are averaged in the ratio 5 : 1 for lines (*b*) and (*d*).

rather greater than the cost of milling. The correlation between the prices of bread and grain is practically the same as between bread and flour. In nearly all the months the price of a quartern could have been calculated nearly from the formula: "when wheat is 8s. 1d. per cwt. the quartern loaf costs 5·6d., and a change of 4s. 10d. in the price of wheat makes a change of ½d. in the price of the quartern." Line (*c*) shows the corresponding numbers for the annual averages of the price of the quartern in London from 1881 to 1910 (Fourteenth Labour Abstract, p. 137) and the Gazette price of wheat.

In lines (*d*) to (*m*) the retail prices used are the index-numbers of London food-prices for the fifteen years 1896–1910, published by the Labour Department.[1] The average prices for this period are deduced with the help of the workmen's budgets given in the Second Fiscal Blue-Book (Cd. 2,337). The wholesale prices used from (*d*) to (*l*) are those employed by Mr. Sauerbeck in the formation of his index-numbers[2]; for (*j*) and (*k*) import prices were taken. For (*n*) the quantities from (*d*) to (*m*), together with tea,[3] are combined year by year in the proportions used by the Labour Department.

The correlations, shown in Column 7, between the wholesale prices are high throughout; it would be expected that potatoes should show more variation than other commodities, since Mr. Sauerbeck only deals with imported potatoes. It is, however, improbable that retail prices, in the smaller shops at any rate, are so clearly connected with wholesale prices as these coefficients suggest. These are rather the coefficients we should expect in large stores, from which, in fact, it is believed the prices are principally obtained.

Now concentrate attention on Columns 6 and 3. If retail prices moved exactly in proportion with wholesale the ratios in Column 6 would be 10 : 10; actually they are less in all cases. If the actual changes in wholesale prices were carried on, all expenses of dealing and transport remaining constant per unit, the numbers in Column 6 would be equal to those in Column 3; this is nearly the case with flour, bacon, cheese, and eggs. If the intermediate costs varied in part with the wholesale price, the second terms in Column 6 would be greater than those in Column 3; this is the case with potatoes and sugar. If the inter-

[1] The tea and sugar duties are subtracted from the retail prices throughout the table.

[2] Middling beef and mutton are taken, and German beet-sugar.

[3] Tea is not included in the table because its retail price has moved apparently only when the duty has altered; no doubt the quality varies.

mediate costs varied inversely as the wholesale prices, tending to keep retail prices steady, the second term in Column 6 would be less than the corresponding term in Column 4; this is the case with beef, mutton, and butter.

The absence of a uniform rule suggests that there is a good deal to be explained in these statistics.

If we study the recent report on Rents and Prices in 1905 and 1912 (Cd. 6,955), we find that even this apparent order is replaced by chaos, and also that there is something arbitrary in the process of calculation. I do not wish to examine minutely, still less to criticise, this admirable and interesting report, but only to point out the way in which uncertainties arise. The general increase stated for the price of bread from October, 1905, to October, 1912, is 15·3 per cent., which is also the change shown for the middle zone of London. This last is obtained by averaging prices varying from 4½d. to 5½d. in 1905 and others from 5½d. to 6d. in 1912. The average for the year in London in 1905 is otherwhere[1] stated as 5·5d.; the price on October 31st, 1905, happened to be specially low. Now the recorded rise in other towns during these eight years varies from nothing in Bristol (5½d. at both dates) to 1½d. at Liverpool (4½d. to 6d.), which is quite inexplicable. A doubt as to the price of a quartern to the extent of ½d. makes 10 per cent. difference to that price, and 2 per cent. difference to the general price level; 1d. in the price of meat makes a similar difference. It is only when general averages are taken that these irregularities appear to be unimportant, and it is quite doubtful whether the process of averaging completely removes them. For these reasons it is specially necessary in the case of retail prices not to emphasise the statistics of particular years or particular towns, and in the end not to regard the measurement as exact.

When we put the data of lines (*c*) to (*m*) together and obtain (*n*), we find an improbably high correlation between wholesale and retail prices. We have also the surprising, but not impossible, result that the change in wholesale prices per unit (together with duties, which are eliminated from the table) are on the average exactly carried on to retail prices, without addition. The regression equation for index-numbers suggested by this line is:—

$$\text{Retail index-number} - 100 = \frac{4{\cdot}56}{6{\cdot}10} \times 0{\cdot}94 = 0{\cdot}64 \text{ of (wholesale index-number} - 100),$$

[1] XIVth Abstract, p. 137.

where both numbers depend on ten kinds of food and are weighted. In the following table Column I shows the wholesale index-numbers (Sauerbeck's and import) averaged, Column 2 the result of the equation just written, Column 3 the retail numbers combined for the ten commodities, Column 4 the Labour Department's London retail food index-number, including other commodities, when tea and sugar duties are eliminated :—

	1.	2.	3.	4.
1896	88	92	90	90
1897	95	97	95	94
1898	95	97	99	99
1899	95	97	96	94
1900	100	100	98	98
1901	97	98	99	100
1902	98	99	99	100
1903	98	99	101	101
1904	102	101	101	102
1905	102	101	100	102
1906	101	101	99	101
1907	107	104	102	104
1908	110	106	106	106½
1909	111	107	106	106
1910	112	108	108	108

The differences between Columns 2, 3, and 4 are within the natural uncertainties of this kind of calculation.

There is, of course, no guarantee that this relation between wholesale prices and the retail prices, as estimated for London by the Labour Department, existed prior to 1896, nor that it will continue. In the nature of things intermediate costs cannot remain constant. The details behind the averages are so variable that this apparent constancy may be partly accidental. It is not even probable that the same result would appear in the average of provincial towns or of rural districts, and the Labour Department's Report shows that the change of prices 1905–1912 varied greatly from town to town. Nor do I think that these retail price movements are at all necessarily those that would be found in all districts or among all classes in London, for reasons already outlined. But the closeness of the relation found with that which would arise, if intermediate costs were unchanged, is so remarkable as to make it important to place it on record.

A. L. Bowley

THE ANCIENT COINS AND CURRENCY OF CHINA.

THOUGH China is the oldest nation in existence, and, as such, is the very place where economic students can obtain the most abundant materials as to the origin of money, yet owing to the difficulty of language only a minute part of her useful materials has been translated into Western languages. Even that part of the materials which has been translated into European languages is not really correct, owing to the lack of proper investigation or to the misinterpretation of terms.

Nowadays, the use of gold, silver, copper, and nickel coins is most prevalent, but if we study the history of coins we will see that primitive people did not use them. Metals are undoubtedly most suitable for coins, but they are not found in a pure state, and hence primitive people could not obtain them. They are concealed in the heart of the earth, and, even if they are found, some amount of refining is necessary. Thus we may be sure that the use of metals as coins is also one of the signs of civilisation, for no backward people can apply such mining and chemical processes.

All primitive peoples adopted materials of daily use as coins, and to this China is no exception. The following were the seven kinds of materials used by the ancient Chinese as coins and currency, the use of which is recorded in many ancient works: (1) shells, (2) tortoise shells, (3) skins of beasts, (4) domestic animals, (5) pearls and precious stones, (6) corn and pieces of cotton and silk cloth, (7) instruments of daily use.

The use of the above-mentioned materials as coins has been recorded in all historical and economic documents written before the birth of Christ. But I must add that some of them were used side by side with metallic coins. I will discuss them in order, thus:—

1. *Shells.*

All ancient peoples dwelling at the sea-coasts were accustomed to use shells as coins, or, rather, as a medium of exchange,

because they were very common; and we know that even to-day the people of the South Sea Islands are still using shells as their coins. But the ancient Chinese used shells more than any other people, and the reasons why they preferred shells are as follows:—

1. The shells have a peculiar lustre, which all primitive peoples liked.

2. They are very durable, and hence are suitable for hoarding without affecting their value.

3. They are very portable as their size is very small; and also they can be easily counted. The value of a single shell can satisfy the smallest transaction, and their multiplication can satisfy larger exchanges. Hence they are suitable for the medium of exchange.

4. By comparing the shells you can class them into various grades according to their quality, and hence you can have shells of various values to satisfy various exchanges.

5. They are natural products and are not quite easy to get, and thus their number cannot be greatly increased by human effort so as to affect their value. The result, of course, is the comparative stability of their value.

6. Though it requires some labour to obtain them, yet it is not so difficult and costly as metals, and hence they are more suitable to the ancients, who had a certain degree of civilisation, but not advanced enough to apply chemical and mining processes with a view to obtaining metallic currency.

For the above-mentioned reasons, all the primitive people appreciated the use of shells as currency, and especially the ancient Chinese. When Emperor Whang-ti established his empire about 3000 B.C., the capital was at the source of the Yellow River—the present Chen Chow Prefect in Honan Province. Then they gradually extended their footing along the river banks to the Yellow Sea, until about 2400 B.C. Emperor Yiao established his capital at Chao-Chow Prefect of the Shangtung Province. Thus the use of shells as currency was quite natural.

Now let me examine some ancient documents to prove the truth of my statement with regard to shells. In the ancient dictionary of Shih-veng, shells are described as follows: "They are a kind of sea insect, living both in water and on land. The ancients used shells as currency and tortoise shells as treasure. At the beginning of the Chow Dynasty, about 1200 B.C., metallic coins were introduced, and were used side by side with shells, until the establishment of the Chen Dynasty about 300 B.C.,

then shells were discarded from the currency." From the above authority we see quite clearly that during the long period before the founding of the Chow Dynasty, shells were the sole currency of China, and even after the Chow Dynasty they were still used side by side with metallic coins. It was only after the domination of Emperor Chen in the third century B.C. that they were driven from circulation, and then metallic coins took their place.

If we examine the formation of the Chinese characters during that time, we find that all economic words, whether nouns, verbs, or adjectives denoting wealth or money, contain the ideographic sign denoting the word "shell" as a component part of the whole character. Here I will give some examples as follows :—

1. Decoration or to decorate : from this we know that at the very beginning shells were used for decoration, and later on they became a medium of exchange.

2. Wealth : for in ancient times a man's wealth was counted by shells.

3. Goods or things : for everything that has an exchange value can be counted by shells.

4. Congratulation or to congratulate : that is to say, when you congratulate a man, you give him a present which can be counted in shells. In the same sense, the word to praise also contains the ideographic sign denoting "shell."

5. Reward or to reward : all rewards were given either in the form of presents which were exchangeable in shells or directly given in shells.

6. Profits : all profits were counted in shells as we count in metallic coins nowadays.

7. Debts : all debts were recorded in shells.

8. Accumulation or to accumulate : they accumulated shells as we accumulate coins.

9. Capital : shells being medium of exchange could serve as capital to a man.

10. Pledge or to pledge : they pledged in the form of shells.

11. To redeem : all redemptions were made in shells.

12. Expenditure : all expenditures were kept in the form of shells.

13. Price : it was quoted in shells.

14. Buying and selling : as all payments were made in shells.

15. Dear or noble : costing a lot of shells, or possessing a lot of shells.

16. Cheap or mean : worth few or no shells.

17. Tax : people paid tax in shells.
18. Greedy : coveting shells.
19. To hire : paying wages in shells.
20. To bribe : paying bribes in shells.

The above twenty words are, of course, only some of the words formed from the ideographic sign denoting "shell," and from them we can draw the conclusion that the use of shells as currency was very prevalent, and also that it lasted for a considerable period of time, otherwise they would not have been able to influence the Chinese language so much. Then, again, we have numerous examples in ancient literature, where they use shells to denote a man's wealth, as we do at present in taels, pounds sterling, dollars, or francs.

The ancients used them generally in pairs, that is, by tying two of them with a piece of thread. A pair of shells was called a "Beng"—literally, a friend. Later on, when "Tao Money" and metallic coins were introduced, they bored holes in them, so that people could tie them up as they did with shells. Even to-day the Chinese are still accustomed to tie 1,000 cash by passing a piece of string through the holes to form a "String."

Of course, we must take note that the economic words given above did not arise at a certain definite period, but extended all over the Hsia (2300 B.C.), the Sheng (1800 B.C.), and the Chow (1150 B.C.) Dynasties—from 2300 B.C. to 300 B.C. This alone gives us a definite idea of the long duration of shell currency in China.

2. *Tortoise Shells.*

The use of tortoise shells as currency has been recorded in numerous ancient books, from which I make a few quotations :—

1. An ancient dictionary says, "The ancients used shells as currency and tortoise shells as treasure." This tells us that they were used only in exchanges of great value.

2. The Book of Rites says, "The feudal lords all consider tortoise shells as treasure."

3. The Book of Hans says, "Currency comprises cloth, 'tao' (knife money, which I will discuss later on), tortoise shells, and shells." In the same book it is also recorded that when the Chen Dynasty annexed all the feudal kingdoms about 300 B.C., the use of tortoise shells and shells as currency was prohibited. Thus, it is quite clear that before the advent of the Chen Dynasty the use of tortoise shells as currency was very prevalent.

Doo Shu, an ancient writer, supposed that the use of tortoise

shells as currency was started at the time of Emperor Shing-nun about 3500 B.C., but up to now we are unable to find documents to prove the truth of his statement.

4. The Book of Changes says, "Give him ten 'Bengs' of tortoise shells": that is to say, give him a piece of tortoise shell worth ten pairs or bengs of ordinary shells—20 ordinary shells.

The reasons why the ancients preferred tortoise shells are threefold: First, they are very durable, and hence suitable for currency. Secondly, they are more difficult to get than ordinary shells, and hence more valuable. Thirdly, they are divisible, and hence more convenient for exchanges than ordinary shells. But owing to the second reason, they were not so widely used as ordinary shells, for they were too valuable for ordinary transactions, and owing to the third reason, their value was not so stable as ordinary shells, for, once divided, their great value was immensely diminished.

I must add that tortoise shells were also used by the ancient Chinese fortune-tellers to predict a man's future prosperity or adversity. I suppose that those tortoise shells could be used for predicting futures as well as for a medium of exchange. Sometimes they were used in their entirety, and sometimes they were divided into small pieces to satisfy various kinds of exchanges.

At the city of Kon-yiu-li, in the Province of Honan, thousands of pieces of tortoise shells were dug out from the earth in the twenty-fifth year of Kwang-shu of the late Manchu Dynasty (about 1899 A.D.) by a man surnamed Wong. By examining the characters carved on them, we know that they were stored up as early as the Ying Dynasty (about 1800 B.C.). From this fact we know that the ancient Chinese used them as currency over a long period.

3. *Skins of Wild Animals.*

The most suitable and convenient article for currency in the Hunting Age was undoubtedly skins of wild animals, as they were the very material which all peoples of that period valued. They could be used as material for clothing as well as a medium of exchange, because they were comparatively durable, and their quality and quantity could be easily detected by those primitive peoples. We find many instances in all ancient histories.

In our country, however, the invention of written language came after the passing of the Hunting Age, and hence we cannot find so many instances of their use. Nevertheless, we do find

some instances in our ancient literature of the use of skins of wild animals as currency.

Those books which record the use of skins of wild animals as currency, all agree that they were used only for exchanges of great value or for presents; because after the passing of the Hunting Age skins became very scarce and their price rose considerably, with the result that they were only used by emperors and nobles on great occasions.

In the Book of Rites it is recorded that the skins of tigers and leopards were used as presents between emperors and feudal lords, and between lords and lords, and that the skins of deer were used as presents between lords and ambassadors and ministers of State. It is also recorded that certain excises were sometimes paid in skins of deer.

From the Chen Dynasty (about 300 B.C.) onwards hunting was almost abandoned, and hence the value of skins was considerably enhanced. Then, again, it was also at that period that metallic coins were largely used in the market, and, for these two reasons, skins of wild animals were driven out of the realm of currency. It is recorded in history that Emperor Wu of the Han Dynasty (about the beginning of 200 B.C.) ordered a piece of white deer skin of one square foot in size to be made, and it was valued at 400,000 cash, or about 400 dollars of the present currency. He forced all princes and noblemen to use it, but without success.

4. *Domestic Animals.*

Domestic animals were generally used by the ancients of most countries as a medium of exchange, as the history of those countries usually begins in the Pastoral Age. But in our country it was not so, for China had passed the Pastoral Age when her authentic history begins. The authentic history of China begins at a time when agriculture was the predominant industry of the country. However, if we examine the ancient documents, we can find some instances to prove that the use of domestic animals as a medium of exchange was also practised in ancient China.

Mencius mentions in one passage that the grandfather of the founder of the Chow Dynasty paid tribute to the tribal head of Shen-si by means of skins of domestic animals, pearls, precious stones, dogs, and horses. This fact gives us at least some idea that domestic animals could be used in paying tribute, and we may infer that they could also be used as a medium of exchange.

Then, again, when Emperor Wu of the Han Dynasty, about

240 B.C., ordered the mintage of metallic coins, the image of a horse was struck on the face. We may reasonably infer from this that domestic animals were used as currency by the ancients, and consequently Emperor Wu struck the image of a horse on the face to give to his coins an historical value.

5. *Pearls and Precious Stones.*

The use of pearls and precious stones as a medium of exchange is perhaps too inconvenient, as they are too valuable and too delicate. Consequently, their use was limited only to exchanges of very high value, and was confined to the nobles and merchant princes.

We may here mention two instances from ancient documents to prove that they were used as currency in ancient China. Kwan-tze, the eminent ancient economist and statesman, says, "The ancients considered pearls and precious stones as first-class currency." The Book of Han says, "Pearls and precious stones were not considered as a kind of currency, when the Chen Dynasty absorbed all the feudal kingdoms about 300 B.C."

From the above-mentioned two instances it seems that pearls and precious stones were used as currency by the upper class of the ancient Chinese during a considerable period of time.

6. *Corn and Pieces of Cotton and Silk Cloth.*

The ancient Chinese were accustomed to use corn and pieces of cotton and silk cloth as media of exchange, and their use is widely discussed in numerous documents. Those materials were regarded by the ancients as having two qualities, namely, as directly consumable commodities, and also as media of exchange. Here I will give some examples from Chinese ancient documents to prove the truth of this statement :—

1. The Book of Chow says, "The duty of the county officer is to gather corn both from open fields and from suburban lands with a view to cover the national expenditures."

2. The same book says, "The duty of the borough officer is to collect fine cloth, rough cloth, pledged cloth, and fined cloth to support the national treasury."

3. The same book also says, "The duty of the city officer is to collect cotton and silk cloths as fines from those houses which do not cultivate lands, and from those individuals who have no employment."

4. The same book further says, "The duty of the director of currency is to collect from both central and local treasuries various

kinds of national currency, which may consist of corn, cloth, and metallic coins."

The use of corn as a medium of exchange was quite prevalent in normal years, but in times of national calamity metallic coins were introduced to take its place. Now let me mention some examples from ancient literature to prove the above statement :—

1. Chen Chong, the eminent ancient writer, says, "In times of famine and flood, commodities became very dear. But gold and copper have no famine year. Therefore, whenever the price of commodities becomes very dear, then gold and copper coins must be minted in large numbers to enrich and relieve the people."

2. The Book of Koh-Yuen says, "In times of famine and flood the ancients used to coin large numbers of gold and copper coins to relieve the people."

3. Kwan-tze said, "During the five years of flood, Emperor Yui, about 2295 B.C., minted the gold of Lih-san into coins to relieve his people's poverty, and during the seven years' drought Emperor Tang, about 1760 B.C., minted the gold of Chong-san into coins to redeem his people who sold their children for food."

From the above-mentioned passages it is quite clear that whenever the price of commodities rose extraordinarily high, then gold and copper coins were minted to relieve the situation. But this method is contrary to economic laws, for the more coins you have put into circulation, the less will be their purchasing power; or, in other words, the price of commodities will rise still higher. Now how can we account for this peculiar method, adopted by all ancient Chinese, of minting large numbers of gold and copper coins whenever famine and flood occur? If we bear in mind that corn was used by these ancient Chinese as medium of exchange, there will be no difficulty in accounting for that peculiar method. Every year at the time of harvest, the government officers collect a part of the corn from various sources for the public treasury to be put into circulation, and the rest of the corn would be used as food for the people. Now in times of famine and flood, when corn would not be obtained from the fields, then the prices rose considerably owing to scarcity. But the people could not dispense with their food, and consequently that part of the corn which had been accumulated from time to time, and which had been put into circulation as a medium of exchange, must return to fulfil its proper function, *i.e.*, a means of subsistence to the starving people. In order to withdraw corn from circulation, the ancient Chinese then minted large numbers of gold and copper coins to take their place as a medium of exchange.

It is precisely the same method adopted by all modern financiers and statesmen—that is, to issue more paper money with a view to pacifying the excited public and to relieving the money market.

The use of cotton and silk cloth as media of exchange was very prevalent in China, and lasted for a considerable period of time. It was even reported that their use was started long before the Tang and the Yui Dynasties, about 3000 B.C.; but of this statement we have no authoritative proof. What we do know is that they were widely used during the Golden Ages, the feudal times, the Chow Dynasty and the subsequent dynasties, until the Ming Dynasty (2400 B.C. to 1466 A.D.).

I will now examine certain documents to prove the method adopted by the ancients with regard to the use of cotton and silk cloth as currency. The Book of Chow says, "The duty of the city officer is to collect fines from those houses which do not cultivate lands in the form of cloth, called *Li-pu*."

Chen Chong, an eminent ancient writer, says, "*Li-pu*, or cloth paid for fines, is a piece of cotton or silk cloth of two *tsah* in length and two *tseng* in width, with official seals on it." It is the Pu-money, or cloth money, and is called a *fong*.

In the miscellaneous articles of the Book of Rites, the following tables of measure for ordinary cloth and for money cloth were recorded :—

10 tseng = 1 tsah 8 tsah = 1 Zing 2½ Zing = 1 Kun 2 Kun = 1 Liang or p'ih 5 liang or p'ih = 1 soh	Measure for ordinary cloth.
4 fong = 1 Zing 5 Zing = 1 p'ih or liang 5 p'ih = 1 soh	Measure for cloth-money.

Now from the second table we see that the standard of Pu-money was *liang*, or *p'ih*, and its subdivision was *fong*, which was a piece of cotton or silk cloth of two *tsah* in length and two *tseng* in width, and which was widely used as medium of exchange. When exchanges of greater value were involved, then *liang* itself was used, which was equal to twenty *fongs*. The highest multiple was *soh*, which was equal to one hundred *fongs*, but it was too big for daily exchanges, and hence was used only for presents among nobles and merchant princes.

The use of Pu-money was clearly recorded in one of the articles of the Book of Spring and Autumn, which says : "A man of Lu (the name of a feudal State) bought two *liangs* of silk cloth worth one hundred *liangs* a piece." That is to say, each piece of the

said silk cloth was sold at 100 *liangs* of ordinary Pu-money by the seller.

Ordinary shells, tortoise shells, and skins of beasts are all natural products, and consequently they cannot be made exactly to suit the various exchanges of the ancient people. Though ordinary shells and corn are small in size, and as a result can be increased and decreased by means of a scale so as to suit all kinds of exchanges, yet the method of weighing was too inconvenient. Thus they were not so widely used by the ancient Chinese as Pu-money, which is an artificial product and can be made to any size and form as they like. The convenience of Pu-money was clearly seen by the ancients, and consequently it was widely used for a considerable period of time. When metallic coins were minted at a later date they were still called Pu-money, and that fact alone shows us clearly the importance of Pu-money in those times.

Another instance to show the importance in ancient China of Pu-money is the retaining of the character *liang*, the standard of Pu-money in the later silver currency. The standard of the present Chinese silver currency is *liang*, which is the same character as the standard of Pu-money. Though the Europeans translated the character *liang* of the silver currency into *tael*, yet in Chinese it is exactly the same. When Emperor Chen of the Chen Dynasty minted metallic coins about 253 B.C., he named them half-liang; that is to say, each metallic coin was equal to one half *liang*, or ten *fongs* of Pu-money.

The ancient Chinese were very particular with regard to Pu-money, and as Chen Chong, an eminent ancient writer, stated, each piece must bear three official seals on the face to avoid forgery. The Book of Rites says, "Cloths which are not uniform in fineness and which are not uniform in width are not allowed to be circulated in the market." Thus we see that the right of mintage was reserved to the Government even in those times.

Again, we must bear in mind that as a *fong* of cloth was only two *tsah* in length and two *tseng* in width, its use as ordinary cloth was out of the question. The *tsah* of the Chow Dynasty was only eight *tseng* of the present Chinese measure. Therefore, one *tsah* of the Chow Dynasty is about 11½ English inches, and one *tseng* is about 1 3/25 English inches. From this we know that the length of one *fong* was about 23 English inches and the width was about 2 6/25 English inches. Thus, they were specially made for circulation as media of exchange.

Throughout the eight hundred years of the Chow Dynasty—

1100 B.C. to 300 B.C.—Pu-money was the most important currency in China, and we may, indeed, call that period the age of cloth standard. Though other materials were also circulated side by side with Pu-money, yet they were of minor importance. Thus the use of Pu-money was special to China, as silk and cotton are two of her most important products. With the advent of the Chen Dynasty, 300 B.C., metallic coins were introduced, and other materials were driven from circulation; but the Pu-money remained the same, until the beginning of the Ming Dynasty about 1466 A.D., as all official salaries before the Ming Dynasty were recorded in terms of *liangs* of silk cloth.

7. *Instruments of Daily Use.*

About the beginning of the Chow Dynasty it occurred to the ancient Chinese that for the purposes of exchange it would be advantageous to substitute for various objects of daily use, such as knives, hoes, sickles, spades, &c., small metal models which might represent the objects themselves.

With this end in view they coined many pieces, representing the most common agricultural implements which everybody used during the agricultural age. We find many ancient coins resembling hoes, sickles, and spades, and they were also named after them.

But if we bear in mind that China was at that time under the sway of feudalism, we will understand that war implements were the most important objects which everybody wished to possess, for internecine war was no uncommon occurrence. Now the art of manufacturing war implements was known only to a few people, and consequently the rest of the community was anxious to exchange them with other articles. Gradually they became the common medium of exchange, and later on, when metallic coins were introduced, their shape and name were still used. Among the ancient war implements the swords were the most useful, and hence all the ancients used to name metallic coins *tao* (sword).

The first Tao money was struck by the Grand Duke of Tsi, the founder of the kingdom of Tsi (Tsi is the present Ching-chow Prefect of the modern Shang-tung Province) during the reign of Emperor Wu of the Chow Dynasty, about 1120 B.C.

Figure 1 represents the original Tao money, as struck by the Grand Duke of Tsi. It was about 7 inches in length and weighed about 740 grains. The Duke's idea was to use it to represent the real sword, which was too inconvenient in ordinary transactions.

But the Tao money was also too long to be used in daily transactions, and so gradually the blade of the sword was shortened, and only the handle remained. At the same time, the end of the handle, which was pierced by a hole, so that the coins might be strung on a cord, was enlarged. This change took

FIG. 1.—Early Tao Money.

FIG. 2.—Later Tao Money.

place sometime in the Han Dynasty, but we have no proof as to the exact date.

Figure 2 represents the Tao money as used and re-formed by the people of the later period. However, the handle of the Tao money was still too long for daily transactions, and so another

FIG. 3.—Cash as used at present.

change took place. The handle was dropped, and only the end of the handle remained. (See Figure 3.) When that change took place we have no authentic date, but the new coins are still used at the present time and are called cash (about 1/36 of a penny).

Our investigations, therefore, show that there were seven kinds of materials used by the ancient Chinese as media of

exchange, but only three of them were of any importance, while the rest served as subsidiary money only. The three important ones were shells, Pu-money, and Tao-money. Shells were the sole currency before the establishment of the Chow Dynasty, 1100 B.C., and even after that time they were still used side by side with metallic coins, until the advent of the Chen Dynasty, 300 B.C. Pu-money was the standard currency of the Chow Dynasty, and it held sway in the subsequent dynasties in a lessened degree, until the advent of the Ming Dynasty, 1466 A.D. It lasted for a period of more than 3000 years. On the other hand, the Tao-money struck by the Grand Duke of Tsi about 1120 B.C., survived all the rest, and its reformed form is still used at the present time.

CHI ZANG WAUNG

GERMAN EXPERIMENTS IN FISCAL LEGISLATION.

I.

In my article on the "Taxation of Unearned Increment in Germany" (Economic Journal, June, 1911), I wrote as regards the then newly issued Imperial Law: "The experiment of the local administrative authorities has been transplanted into Imperial affairs, and in all probability it will be found necessary, after many experiences, to undertake a revision of the Act of 1911. In the meantime the complications of the problems to be solved will cause a great deal of trouble."

This revision has begun sooner than anyone could have expected. The new Imperial Tax legislation (July, 1913), carried in the Reichstag by a large majority, has put an end to the Act of 1911. The experiment of 1911 has been amended and superseded by the experiment of 1913. Not only so, but within a very short time more a new and far greater financial reform has been decided on, which, in its turn, is of an experimental, though highly important, character.

To explain this a few words are necessary in regard to the financial evolution of the Empire. This evolution has been a struggle against many difficulties:—

(1) The dual nature of the Parliament by whose consent the new taxes are brought in—a consequence of the federal constitution of the German Empire.

(2) The difference in the mode of election to the two Parliaments;—universal suffrage holds good for the Empire, but in Prussia the suffrage is graduated according to the census, and gives to the large ratepayers an overwhelming influence in the elections.

(3) Each of the two Parliaments has to weigh the opposition of these electorates to the introduction of any taxes. On simple financial grounds the Empire has assigned a great preponderance to indirect taxation. In the separate States, on the contrary, direct taxation preponderates. A parliament elected by universal

suffrage refuses its consent to indirect taxation with as much opposition as a parliament whose suffrage is determined by the census is likely to show to taxes which chiefly touch the well-to-do classes (such as income taxes, property taxes, &c.).

(4) In the two Parliaments, but particularly in the Reichstag, the first conditions of parliamentary government are lacking, *i.e.*, two ruling parties, which change places according as each obtains a majority in the elections, upon which it can rely. In Germany the individual States, and particularly the Empire, must rather expect to find at the close of elections and after legislative experiments party majorities which can only occasionally last for more than a year or two.

(5) The difficulty does not only lie in the large number of parties. It is added to by the character of the parties themselves. Economic, nationalist, clerical, constitutional, and Utopian tendencies divide them one from another. More than a quarter of the members of the Reichstag belong to the Social Democratic Party, which has begun of late to change from a party with an habitually negative policy to one with a more than usually assertive policy.

We have only mentioned, above, the chief obstacles. It is enough, however, to show why financial affairs have become so great a difficulty. In Prussia a fortunate surplus has appeared to meet the deficit, arising from the profits of the State Railways (*cf.* ECONOMIC JOURNAL, 1907, "Government and Public Finance"). In the Empire the deficit has been met by the growth of liabilities, which now stand at £250,000,000. This would have been still greater if the Empire had not made a kind of fortunate speculation, which no one had expected to justify on fiscal grounds, namely, through the corn tariff. It turned out, indeed, to be little less than a great fiscal speculation, although it was only introduced and carried out for the protection of agriculture against the competition of the world market.

Nevertheless, Imperial taxation of this kind, in a Parliament elected by universal suffrage, has plainly reached the point where a pause must be made in the increase of indirect taxation on the consumption of the working classes. So it happened in 1906[1] that a beginning was made to meet Imperial finance through taxes that chiefly fall on the propertied classes, namely, inheritance duties, which, however, leave the next-of-kin free. Taxes

[1] Cf. for the legislation and experiments of the years 1906–12, my essays—"Considerations on the Financial Reform of the Empire, and Related Matters" (Stuttgart, 1913), published before the New Bill of 1913.

on the Exchanges, inadequate attempts partially to burden mobile capital, had preceded these laws.

The Bill, which Prince Bülow laid before the Reichstag in 1908 (in continuation of the policy taken up in 1906), attempted to tax the whole of inheritances through an estate duty. After a heated parliamentary struggle it was thrown out in the Reichstag, and Bülow was forced to resign.

The majority of the Reichstag (Conservatives and Clericals) who supported Bülow in 1909 felt themselves compelled to offer some compensation for the rejected estate duty. At the close of a wearisome session, a few weeks after Bülow's resignation, the well-known scheme for taxation of unearned increment was, among other things, decided on. For the two years following this remained law, but was to disappear again after a short trial. Among the other new taxes of 1909 there was a stamp duty on cheques, which, however, was soon repealed in 1913, since it had only proved a check on the effective circulation of cheques, too little developed in Germany as it is.

II.

The problem of the further development of death duties remains to be solved. They really embody a demand for equality in the distribution of taxation rather than an important addition to the imperial revenue. This latter problem was, nevertheless, a far larger one in every way. The chief work of the session 1912–13 lay in its solution. It was understood that a means must be found to put an end to the increase of the Imperial Debt. For some years promises had been given in the Reichstag, as well as on the part of the representatives of the Imperial Government, that in the future no more debts should be contracted unless for productive purposes. It happens, however, that the Empire has little occasion to contract this kind of debt (such as the Prussian State has contracted by the purchase of the railways), so that the promise means that on no account must further imperial indebtedness be incurred, *i.e.*, that all expenditure should be covered by taxation; and that for each important new piece of expenditure, new taxation should be imposed or old taxes increased.

Hitherto the following had been a favourite means for solving this problem. It is possible to distinguish between ordinary and extraordinary expenditure, corresponding to ordinary and extraordinary demands. The increase of the army and navy was an extraordinary expenditure compared to the yearly recurring needs

for the payment and clothing of the troops and such like requirements, these being reckoned among the ordinary demands. To meet the ordinary annual demands by incurring liabilities is really impossible in an ordinary Budget. A State which does this and incurs a debt for such a purpose, is drying up the sources of credit. It is more allowable to borrow for a so-called extraordinary or *occasional* purpose. This has been the case hitherto in the German Imperial Budget, and also in the other Budgets of the Federated States. It is obvious, however, on closer inspection that the difference is only superficial. In reality the expenditure is not extraordinary, and still less non-recurring. It recurs nearly every year, only not always to quite the same extent. Looking back over the last ten years we have an easy standpoint from which to average the yearly returns, and at the same time to allow for an increase when the progressive rate of expenditure is taken into consideration.

It happens, in addition, that the growing burden of indebtedness leaves behind a deposit of recurring expenditure through the increasing burden of payment of interest. The German Empire has an annually recurring expenditure of this kind amounting now to £10,000,000, from which its Budget would be free if it had incurred no liabilities.

On the other hand, the new plan to stop incurring liabilities is rather ideal, and it is doubtful whether it would be possible to carry out such an admirable system. Already for some time past similar intentions have been expressed, and fresh indebtedness nevertheless has always been incurred. Moreover, from what source are the new taxes to be drawn if the scheme is to be possible? Hitherto it has been difficult enough to increase the returns of taxes in order to cover merely the increasing ordinary expenditure, which, apart from the extraordinary expenditure, was absolutely necessary. It was only through the extraordinary measures which made last year notable, in that even so substantial a result as this was brought about. It is true, moreover, that for an unusually great and peculiar end, it is worth while to negotiate an adequate, unique, and non-recurring piece of taxation of unusual severity.

III.

The occasion presented itself at the beginning of 1913, when for the purpose of the increase in the army the Reichstag had to vote a new bill. An extra demand for £50,000,000, and a permanent demand for £10,000,000, was involved. A large

majority of the Reichstag was immediately ready to concede the increase in the army. Not quite so quickly, however easy comparatively, could a majority be found to pass the necessary taxation to meet these demands. It is worth noting that it was easier to find the sum of £50,000,000 for the extraordinary demand than the sum of £10,000,000 for the permanent demand.

Hitherto, when such cases have arisen, the most unusual of the demands has been used as an excuse for incurring liabilities. But this time its unusual, non-recurring character was valuable as an excuse for the requisition of a property tax, which has been given officially the curious title of "defence contribution";—curious in that it uses the incorrect name of "contribution," evading the correct title of tax. It is not desired to call the property tax by its right name so long as an important part of the Reichstag, and especially the administrators of the separate States, want to lay hold of the property tax for the financial demands of the individual States. It is worthy of remark than an incorrect name, and in particular the "occasional" nature of this tax, should be enough to allow the imposition of an enormous property tax for the purpose of imperial finance.

One feature of this new imperial tax was specially noteworthy. It was the complement, which the imperial Budget had hitherto almost excluded, to indirect taxation. It was a complement intended to touch the propertied classes, and also to reach the ranks of the middle class and small occupiers. The proposal of the Imperial Government was to raise half per cent. (on a uniform scale) on all property amounting to the sum of £500 and upwards. But it was not possible to have nothing more than a property tax in the strictest sense, since justice forbids that large personal incomes which are not derived from property should be free from the tax, while such small sums as £500 are taxable. For that reason personal incomes of £2,500 and over were to be burdened with a 2 per cent. tax, except in so far as an equal or higher sum has already been taken from the property. A uniform treatment in the Bill of personal incomes covering a wide range (those below £2,500) is avoided by the Bill on the same grounds as those on which a progressive scale for the property tax is avoided, namely, in the interests of the simplification of taxation and its assessment.

The Reichstag Commission has radically altered the Bill in both respects. The progressive scale advances in a continuous grade by uniform steps, and has been brought down to personal incomes of £250. Thus, the new tax has in truth become an

income and property tax in the form in which the Reichstag passed it on the 30th June, and to which the Imperial Government gave its consent. The original plan of the scheme was to raise the tax in two contributions (1914, 1915), for which the Reichstag has substituted three (1914, 1915, 1916).

The property tax begins on property of £500. But if the total income from all sources amounts to less than £200, property up to £1,500 remains free from the tax; and with a total income of less than £100, property up to £2,500 is free.

The amount of the property tax is 0·15 per cent. for the first £2,500 on each property (the larger porperties as well), and thereafter on the following scale:—

£		
2,500	0·35	per cent.
5,000	0·30	,,
15,000	0·70	,,
25,000	0·85	,,
50,000	1·10	,,
150,000	1·30	,,
250,000	1·40	,,
for higher sums	1·50	,,

In the same way, personal income is subject to progressive taxation. At the bottom of the scale, on incomes between £250 to £500, 1 per cent. is imposed, with progressive steps up to 8 per cent. on incomes of £25,000 and over. In the case of an income part of which is drawn from property, 5 per cent. of the taxable property is deducted from the total income, and the rest is the taxable income. According to this, a property of

£4,000	pays a tax of	...	...	£9
£225,000	,, ,,	...	...	£2,530
£1,600,000	,, ,,	...	...	£22,850

In the Canton of Zürich the property tax amounts to

4½	per mille for the State
8½	,, for local taxation (on an average)

i.e., 13 per mille yearly, without, however, being subject to progression, not as an extraordinary tax, but as regularly recurring taxation year after year. But what is chiefly to be remarked of the assessment is the extent to which it has changed since the time that Adam Smith (on the authority of a French official work) praised it in respect of the height it reaches to, and in the laxity of the forms of collection, which have very feeble force in meeting the opposition against so high a tax. In Zürich the general belief is that on the average only half of the actual property is assessed, which means one-sixth of the property income (16⅔ per cent.).

The existing property tax in the separate German States is still inconsiderable. In Prussia half per mille (Act of 1893) is allowed to the State, but not for local taxation. All the more thoroughly, therefore, is the income tax developed for State and municipality so as to include all kinds of income, while the property tax represents a supplementary burden corresponding to the greater taxable capacity of incomes from property. The income tax to-day amounts roughly to 10 per cent., an average allowing for great differences in the amount of the communal supplement. The Imperial income tax of 1913 does not, therefore, find so much new scope as in the property tax; or, in other words, it is the imperial tax which is resulting in an energetic administration for the first time of the additional charge on incomes from property, while the undifferentiated universal income tax is already a heavy burden for States and municipalities.

The existing regulations for the administration of taxation in the separate States are to be used to carry through this new law. It is a novelty to employ these regulations for the purpose of an imperial tax. What is accomplished during the next few years will teach us the result of this great experiment.

The financial measures which in the Reichstag are emphasised as "occasional" or "extraordinary" should be looked at in more than one way: First, from the standpoint of the success of the new experiment; second, and equally important in the event of a favourable result, how the future development of imperial finance will be affected. While, in the future, no further imperial liabilities are to be incurred, on the other hand, the new imperial tax is only to be levied once. What further financial expedient is there to be used for extraordinary purposes? In the future will the problem of indebtedness be really overcome?

IV.

However that experiment turns out, the content of the new measure lies in a region accepted by modern science and legislation on taxation and finance. It is otherwise with the second measure, passed on the same day, which is directed towards meeting the remaining imperial expenditure. This is experimental, owing to the peculiar nature of its object. No authorities on legislation and finance have had up till now anything to say on the matter. It goes beyond the idea of the taxation of unearned increment through a mixture of confused doctrine with the opportunism and compromises which the complex

political situation made necessary. In all probability it will prevail for no more than a few years, and will be abandoned after some experience of its working, as in the case of the law of 1911.

It would have been convenient to take up the duty on inheritances which had been laid on one side for years, and to meet thereby the debt incurred in 1909. But there were difficulties in the way, which recalled that year and its failures. The imposition of death duties was left in the hands of the Empire by the law of 1906, after these taxes had been taken out of the hands of the separate States. But the difficulties remained almost the same, because the opposition of 1909, namely, the Conservatives, and, in some degree, the Clericals, continued to oppose the extension of the tax to the next of kin.

The property tax again, which hid itself as an extraordinary tax under the incorrect title of *Wehrsteuer*, would not be accepted as an ordinary imperial tax, partly because the separate States wish to reserve it for their own financial needs, and partly because the Prussian Landtag elected on the basis of the Census offers a better protection for the propertied classes against the property tax than can be found in the Reichstag, which depends on universal suffrage. In their antipathy towards this tax, also, the same two parties are found united.

From this negative state of affairs the curious position arises that there is no tax on inheritances or property, but that from each a tax is collected, and accepted under the name of property increment tax. It is to this creation of party compromise that the Imperial Government gave its consent. It is an example of the kind of legislation it is driven to attempt owing to the difficulties arising out of the motley character of the parties, and because the plain and undoubted truth must be put out of the way. It is an experiment which will probably prove itself unsuitable in a few years, and at the best will turn into an ordinary inheritance duty. It will not hit property or inheritance in the usual manner, but through the medium of an increase in property during prescribed intervals of time. At the moment this amount of success has been achieved, that the Clerical party has been won over in its favour, while the Conservatives have kept up their agitation against this law also.

The content of the law is as follows :—

The property increment duty touches the increment shown by comparing the magnitude of the property increase at different periods. The entire movable and immovable property after deduc-

tion of liabilities is reckoned as property for the purposes of the tax. The increment must be reckoned on each occasion over periods of three years, the first falling due on the 31st December, 1916. The property of individual owners under £1,000 remains free from the tax. Increment under £500 is also untaxed. On property between £1,000 and £1,500 the increment will only be taxed in so far as it exceeds the tax-free limit of £1,000. The tax introduces a double progression, namely, for the amount of the income, and the amount of the increment.

Increments of from £500 to £2,500 are taxed at 0·75 per cent., and the scale then gradually ascends, increasing by a maximum leap of 1½ per cent. on increments exceeding £50,000. Next, the second scale, which is determined by the amount of property, fits in. The above tax scale rises upwards from 0·1 per cent. on properties of from £5,000 to £10,000 (the lowest step), to 1 per cent. on property over £500,000 (the highest step).

Property obtained by inheritance will also be treated as increment, including direct inheritance by children. Only the inheritance of a surviving husband or wife remains untaxed.

These are, briefly, the most important points of the new law. The inheritance duty is therein extended, as we have seen, to the inheritances of children. For the first time a law has been passed for the whole German Empire, which hitherto had only been law for isolated minor States (Hanseatic towns, Alsace-Lorraine). In the Empire (1908–9) only a useless endeavour had been made by the imperial authorities, and in Prussia (1890) the Government's attempts had been rejected by the parliament. Now at least we have in virtue of the new experiments a tax on the inheritances of children—though on a very small scale. In the case when the inheritor is a minor, and the property does not exceed £2,500, the tax is reduced by 5 per cent. for every year by which he falls short of twenty-one years of age, up to 50 per cent.

The property increment tax might have found justification if the normal and long well-understood property tax had already reached its full development in the individual German States. That would have justified the Empire in not making further use of the same measure, and in putting in its place this new experiment. This, however, is not the case. The property tax in the individual States has existed hitherto only in embryo—in Prussia half per mille. In spite of this beginning there remains a very large taxable capacity in property, and especially, perhaps, in the largest properties, the increase of which is not

affected by the burden of the tax. The increase in property would also be reached through the property tax, while such a tax would touch the whole property one year with another, whether it has increased or not. The person with a large income pays more tax than the person with a smaller income. But it is nonsense when, from the point of view of the property increment tax it is laid down: that if two people, each possessing property of £5,000, the one for a year, the other since birth, it is in such a way liable to payment that only the person who has had the property for one year can be taxed; and the other because he has had it from birth goes tax free. The millionaire who consumes his interest every year will be free from the tax; but the owner of £1,000 will be taxed when he has saved £500 in three years.

It is necessary to realise all the difficulties attendant on the nature of the parties in the German Reichstag, in order to understand how this curious experiment has been brought about. It is, in fact, the contrary of what the name of the tax clearly suggests. For the taxation of unearned increment plainly ought to tax the ownership of ground rent and house property on account of the monopolistic tendency of this constantly to increase in value in the course of time, independently of action on the part of the owners. The apparently novel result follows on the proposal to tax the increment in value of *all kinds* of property, that unearned increment will not be specially burdened. As to the source—whether earned or unearned—nothing is asked. For this tax it is, in fact, quite a different distinction that has to be decided, namely, the question whether an increase in value has arisen or not in the course of a short period of three years. This fact is the criterion. Hence a large property remains free if it has not increased in value during the last three years. Therefore it is for the old landed proprietors rather a freeing from taxation than an imposition. This is, at all events, the case when the method of valuation is such that it is impossible to follow movements in the market price.

However, in spite of this tendency of the new tax, the Conservative party in the Reichstag, in spite of its agrarian character, has not allowed itself to give a verdict in favour of the tax. The party has rather remained in opposition, because it did not wish that either a property tax, even in so topsy-turvy a form, or an inheritance duty for lineal heirs, should pertain to the Empire, in spite of the definite limitations which are contained in the new measures.

The rest time will show.

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ENGLISH TOWN DEVELOPMENT IN THE NINETEENTH CENTURY.[1]

In the course of the last century the main social problem changed from a rural problem to a town problem. This was certainly true of the Poor Law. The problem of the 1834 Commissioners was the rehabilitation of the rural labour. That was successfully tackled, but meanwhile another problem was being developed—how to build up town life on a sound basis. The recent Poor Law Commissioners in the Majority Report tell a story of pauperism steadily diminishing from 1834 onwards, both in town and country, until nearly the close of the century, when there appears an increase in adult pauperism, both male and female, in London and the urban areas. This is attributed to "moral causes," or "inducements to excess of some kind" to be found in industrial towns, "especially among the unskilled classes." They consider that great self-restraint and steadfastness is necessary to an industrial life in the large centres of population, and they express the hope that these qualities may be acquired by a larger number of the unskilled class, as they have been acquired by the greater part of those engaged in industry. Before the Poor Law Report appeared, the present writer had, in a study of [2] three Birmingham Relief Funds stretching over a period of twenty years, noticed a double tendency in the industrial life of Birmingham—on the one hand, a marked increase of providence and independence amongst the skilled artisans and respectable workmen generally; while, on the other hand, many unskilled labourers and the less respectable workmen, whether skilled or unskilled, appeared less provident and less independent than twenty years previously. The question that has presented itself is this: Is there anything in the history of the development of town life which would lead us to expect this dual movement—amongst one section of the working classes a clearly defined material and spiritual progress—amongst another section stagna-

[1] A paper read before Section F of the British Association, 1913.

[2] Economic Journal, December, 1905.

tion and possibly active degeneration? This lack of homogeneity amongst the working classes appears to be of recent growth. An acute observer like Arnold Toynbee treats working-class progress as one and undivided, and writing, as he did, in 1880, was most probably right. If we go back a hundred years we find deplorable conditions in our great industrial towns, but conditions which were largely common to all classes. For instance, smallpox and typhus claimed their victims in all ranks, and a bathroom was an unknown luxury in any house. Business and professional men lived in the centre of the town, and had to go through the poorer quarters to go into the country, so that in a growing town the middle-class district was at a growing disadvantage. The middle classes met this by migrating to a west end. The physical separation of the middle class from the working class had come about before Arnold Toynbee's time, and he was the pioneer of a counter movement which produced "settlements." What this paper is chiefly concerned with is a much later class separation, which has received much less attention, namely, a separation between the upper and lower sections of the working classes themselves. Though this separation is quite recent it cannot be explained without a consideration of the circumstances in which our modern towns developed.

The amount of information which might be got together on modern town-life is prodigious, but only a few samples can be taken. To a considerable extent attention must be confined to sanitary conditions, though definite information is available and will be utilised as to one aspect of the moral conditions of town life. Experience shows, too, that physical and moral degeneration exist side by side, so that death-rates may be regarded as an index to moral as well as physical conditions.

At the beginning of the nineteenth century sanitation was, in general, mediæval. Let us assume that for small towns this meant no very grave danger, but that there would be a decided detriment to health in a town of 50,000 inhabitants, and that in a town of 200,000 inhabitants (covering probably the area of a circle with a two-mile diameter) the risk to health would be very grave. At this time London had practically a million inhabitants, Liverpool 78,000, Manchester 70,000, Bristol and Clifton 67,000, Birmingham 61,000, Sheffield and Leeds very little over 30,000, and Leicester only 17,000. These mediæval arrangements had in certain towns been slightly modified by Private Acts of Parliament conferring some very elementary powers for sanitation and police on specially appointed commissioners. It is not to be

assumed that these powers were either widely or efficiently exercised. For instance, in 1838, immediately before Birmingham was incorporated, it had nineteen constables; a number raised on incorporation to 336. In 1848 the surveyor for Duddeston and Nicholls had a salary of £30 per annum, and was apparently not certain whether the contents of drains would run up or down a slope.

For the sanitary condition of provincial towns at the beginning of the nineteenth century the only source of reliable information is these Private Acts. It is no use searching the town chronicles, as their authors do not seem to have thought about the matter at all. Bristol had obtained Acts of Parliament in the reigns of William III., George II., and George III., regulating the navigation of its river, providing for the cleansing of footpaths, establishing a night watch, &c., and at the date mentioned was under an Act of 1766. In 1806 power was obtained to have street lamps, to make sewers, and to pave streets. In 1819 gas-lighting was introduced. The Act of 1806 gave an unlimited rating power for the purpose of carrying out its objects, and the rate was the same for all occupiers.

Norwich up to 1806 had only a power to light streets, but in that year obtained power to pave streets, make sewers and cesspools, place lamps in the streets, have watchmen, cleanse the surface of the streets, and deal with projecting houses. Its improvement rate was limited to 4s. in the £, on half the annual rent, but if the poor-rate was above 5s. 6d. in the £ (and the possibility of such a poor-rate seems positively appalling to us, and throws a vivid light on the poverty of that time) then the improvement rate was not to exceed 3s. in the £. Other towns which obtained Acts in 1806 for lighting, watching, paving, and cleansing purposes, or some of them, were Lynn, Exeter, Boston, Lichfield, and Lewes. Exeter had had power to light its streets as early as 1760.

Rotherham, which is, of course, a far older town than its near neighbour, Sheffield, had, as early as 1801, obtained an Act to deal with its market place, and for cleansing and lighting purposes, but its rating powers were limited to 1s. in the £.

Leeds obtained its first Act in 28 Geo. 2, and obtained another Act in 1790 on familiar lines, but distinguished by powers for the provision of a water supply. In 1809 the area over which the Commissioners had jurisdiction was enlarged, and the Commissioners were specifically empowered to have offensive middens, &c., removed from private premises.

In the same year Swansea obtained a rather drastic Act for those times. The removal of nuisances comprised objectionable filth, ashes, cinders, and rubbish. New buildings were to be perpendicular, and not overhanging, and to be set back to a definite building line, and were not to be thatched. Slaughter-houses were to be regulated. Rates were, however, limited to 1s. in the £.

Birmingham's earliest Act was obtained in 1769. In 1801 the Commissioners obtained a much-needed power of street-widening. A differential rating power was sanctioned. By a further Act of 1812 lamps were to be set up, spouts and gutters were to be carried into the culverts of the roadway, and no new buildings were to be thatched. The duty of sweeping and cleansing footways was put on the inhabitants, who might, however, compound for it. Steam engines (*mirabile dictu*) were to consume their own smoke. There were to be watchmen and night constables. New streets were to be 14 yards wide. The Commissioners were empowered to purchase the markets. The rates were fixed at 9d., 1s., and 1s. 6d. in the £, according to the size of house.

Manchester affords a good instance of the chaotic absence of government in a non-corporate town at this period. The parish of Manchester was fifty-two miles in circumference, had a population of 140,000 inhabitants, and consisted of twenty-nine separate townships. The earliest improvement Act which the writer has been able to find is as late as 1826, and relates only to one township (Ardwick).

From this brief review of Private Bill legislation we may get a general idea of the position of English towns in the first thirty years or so of last century as regards building and sanitation. The effects need not surprise us. Everywhere the diseases of dirt still flourished, though the beginnings of sanitation brought about some little improvement. Smallpox was, of course, still the permanent scourge of the country, though the proportion of deaths due to it was steadily falling. In the three decades at the end of the eighteenth century the proportion of smallpox deaths per 1,000 deaths had been 102, 88, 92, while for the first three decades of the nineteenth century the proportion had fallen to 73, 43, 35. Our modern system of vaccination was not introduced till 1840. Typhus and gaol fever were also of frequent occurrence. In spite of John Howard's agitation the state of English prisons was almost as bad as ever, and though Gaol Acts were passed in 1823–4, their provisions were evaded or ignored.

Cholera was an epidemic visitor. Side by side with this was the fact that industry was practically without regulation. The Health and Morals of Apprentices Act (1802) was a very ineffective piece of legislation, and the Factory Act of 1819 only applied to cotton mills. Elementary education was represented by a few Lancastrian schools, and rather more National schools. Popular amusements were becoming somewhat less gross, and the Justices had done a good deal in the way of discouraging cock-fighting and bull-baiting, and the licentiousness which accompanied pleasure fairs. The attitude of the Justices towards the drink traffic is most important.

Mr. Sidney Webb, in his *English Local Government* (The Parish and the County, p. 585–8), has told the story of the effort made by the licensing justices between 1787 and 1815 to control the drink traffic, "with results on the conduct and character of the people which, as we think, every student of the period would nowadays declare to be almost wholly good." In the decades that followed the peace of 1815 there gradually arose an overwhelming reaction against this licensing policy, and the dominant idea became that of free trade in ale and alehouses. This brought no legislative change till 1830, but the change when it did come was so important that it makes a convenient dividing point in our story—especially as from about the same date we get the stream of legislation which followed the Reform Act of 1832.

During this part of the century—say up to 1831—the town population had been growing rapidly. The whole population of the country had increased by 60 per cent., but there were not many large towns which had not increased by at least 100 per cent. This was certainly true of Liverpool, Manchester, Leeds, Sheffield, Birmingham, and Leicester. In Bristol the increase was about 50 per cent., but in Clifton it was nearly 100 per cent. No English provincial town had reached the 200,000 line. The rich were still living in the centre of the towns and the poor in the suburbs. In Birmingham the proximity of the Edgbaston estate, and the decision of its owner to have it laid out solely as a residential estate, presented an unusual opportunity for the segregation of the middle classes. An inspection of several of the old estate maps shows that in 1809 the estate was wholly undeveloped, and that in 1825 development on the side nearest the town had just started. On the other hand, the main residential street in the centre of the city, whose buildings still remain, is named after the Battle of Waterloo, and was apparently built in the decade following that battle. Rich and poor

alike suffered from the absence of sanitation, and it is doubtful if there were any glaring differences in death-rates. There was little or no sign of our modern town problems. Not much has come down to us from that period, for the buildings have mostly been pulled down to make way for the railway stations, municipal buildings, and wide thoroughfares of the modern central area.

When we come to the next period of the nineteenth century, roughly from 1830 to 1870, there is a very different story to tell. Let us take housing; there are said to be from 40,000 to 50,000 back-to-back houses to-day in Birmingham, the homes of at least 200,000 people; these were practically all built in this period. Back-to-back houses are the despair of medical officers, and recent official figures for certain Yorkshire towns show a mortality greater by 15 per cent. to 20 per cent. in them than in through houses comparable with them in rent and character of occupants (Cd. 5,314).

If we turn to licensing administration we find that in the centre of Birmingham—taking a mile radius with a population of not less than 200,000—there was, a very few years ago, roughly one licensed house for every two acres, or, say, every fifty families. A very large proportion of these licenses came into being in this 1830–1870 period. What is true in this respect of Birmingham is true of all our largest provincial cities. Again, since 1837 reliable statistics of births and deaths are available. The outstanding fact which these statistics show is that the death-rate for the whole country, including the country districts, was as high in the 1860–1870 period as it was from 1838–1840. As we go round the slums of these big provincial cities we are faced everywhere with the evil legacies of this disastrous period of our social history.

The main mistakes of the period were its housing policy, or, rather, the absence of any housing policy, and its licensing policy. The housing problem was, of course, one of immense difficulty. The increase in the population of England and Wales between 1831 and 1851 was over four millions, and between 1851 and 1871 nearly five millions. The steady flow into the towns had already begun, and by 1851 half of the population of the country was living in "urban districts." By 1881 this had been raised to over two-thirds.

By 1851 the following municipalities had passed the 200,000 line, viz., Liverpool with 376,000 inhabitants, Manchester 316,000, and Birmingham 233,000. With between 200,000 and 100,000 inhabitants came Leeds with 172,000 inhabitants, Bristol 137,000,

Sheffield 135,000, and Bradford 104,000. The rate of growth of towns between 1851 and 1871 was not less rapid than in the preceding twenty years. How were these crowds housed? Everything was sacrificed to cheapness, and cheapness was attained not merely by excluding all conveniences such as the laying on of water, but by restricting the ground space. The system of economising space by building cottages in courts must be an exceedingly old one, and an old city like Norwich is full of them. The new manufacturing districts seem to have the glory of inventing an added horror by building in these courts three-storied back-to-back houses. It is exceedingly difficult to get exact information as to when different types of houses were built, but judging from the geographical position of this type of house, both in Sheffield and Birmingham, its adoption may be put somewhere near 1830. In Birmingham the building of these houses seems to have stopped just before 1870, on the passing of a building bye-law which enacted that there must be a space behind every new house. Their erection has recently been made illegal by statute.

As far as water supply and drainage were concerned, these closely-built and stuffy houses were no better off than the houses in a small village. In 1848 an inspector visited Birmingham to make an official inquiry and noted the absence of a general system of sewerage, the imperfect condition of streets and roads, the confined courts, the open middens and cesspools, stagnant ditches, and insufficient water supply. It is interesting to note what escaped his attention. We know from another source that at this date there were pig-styes in the neighbourhood of the Town Hall, and therefore presumably all over the town. The pig-styes and the back-to-back houses he seems to have taken for granted. Drainage, water supply, and middens have been attended to, but the back-to-back houses still remain, and a beginning only has been made in turning closed courts into open terraces. Here, therefore, we have a direct legacy from the past.

Birmingham does not afford us a very good opportunity of showing in figures the abiding effects of this period, but, fortunately, through the kindness of the Medical Officer of Health for Manchester, some very striking and instructive figures for Manchester can be given.

Manchester Township represents the oldest and most central of the twenty-two townships which made up Manchester Parish. It was completely built over by the year 1851, and its population was then 187,000. Since that time it has, by a process which is

taking place in the centre of all large towns, steadily diminished in population, so that in 1901 its population had fallen to 132,000. The death-rate in Manchester Township has been as follows :—

1838–1840	1841–1850	1851–1860	1891–1900
35·8	33·3	31·6	29·6

Now Manchester has in many matters of health taken the lead, and enormous strides in general sanitation have been made in the forty years between 1860 and 1900; and though, of course, we must set against this the fact of the very large population which has gathered round old Manchester, yet the fact remains that the death-rate for 1891–1900 is only two points better than that for 1851–60. In a more modernly-built town like Leicester the death-rate of the whole town in 1851–60 was 25·26, while in 1891–1900 it was 17·9. The reduction in Manchester Township in forty years is about 6 per cent., and in Leicester 30 per cent.

We may reinforce these figures with those for the whole country. In the period 1841–50 the death-rate was 22·4, while for the period 1891–1900 it was 18·2. Manchester Township has therefore seriously lagged behind the general rate of improvement, and is relatively a more unhealthy neighbourhood than it was forty years ago. Very probably this is true of the central areas of all our very large provincial cities, where these central areas were covered with small houses prior to 1870.

Now let us turn to licensing administration. The feeling against the restrictive policy of the Justices to which reference has already been made resulted in the legislature passing an Act in 1830 under which free trade in beer (not wine or spirits) was established. Any householder on executing a bond and paying a licence duty of £2 2s. was entitled to retail beer and cider on or off his premises without a Justice's licence. The result of the Act was an enormous increase in the consumption of beer, and no diminution in that of spirits. At once 30,000 beerhouses sprang into existence. In spite of somewhat more stringent regulations these continued to increase, till in 1869 they numbered nearly 50,000. At the same time, the fully-licensed houses, which in 1828 numbered 50,000, had by 1872 reached 70,000. The beerhouses with an on-licence were brought under the Justices' discretion in 1869, but the then existing beerhouses (since known as *ante* 1869 beerhouses) were put in a favoured position by provisions which prevented the Justices from refusing a renewal of an *ante* 1869 beerhouse unless the house had been misconducted or for other similar reasons. Up to this year (1869) our big cities were flooded with beerhouses. We have it on the

authority of the inspector to whose report reference has already been made that in Birmingham in 1848 there were 1,363 publichouses. This gives one to every 166 inhabitants, or every thirty-three families. Until the passing of Mr. Balfour's Act in 1903 very little was done to get rid of these *ante* 1869 beerhouses, and most of them survive to-day. A few years ago the writer went into this question in some detail as regards Birmingham, and the following figures will give some idea of how this state of affairs has survived in the older wards :—

St. Mary's had one publichouse to every	177	inhabitants.
St. George's one to every	239	,,
St. Bartholomew's one to every	275	,,
St. Thomas one to every	287	,,
St. Martin's one to every	285	,,
Deritend one to every	316	,,

While Saltley, an entirely working-class suburb, which has for the most part been built since 1870, has only one publichouse to every 1,822 inhabitants. The excessive number of publichouses in the older parts of our large cities is therefore another direct legacy of this 1830–1870 period.

We must not assume that during this period nothing was being done to promote the healthy development of our big cities. The period of improvement by Private Act of Parliament lasted till about the 'fifties, and was much facilitated by a series of general Acts, most of them passed in 1846–1848, which were based on the experience gained by the experiments in the big cities. These general Acts were not compulsory, but could be adopted in whole or in part.

The more important were the Town Improvement Clauses Act, 1847; the Markets and Fairs Clauses Act; the Town Police Clauses Act, 1847; the Public Baths and Washhouses Act, 1846; and the Public Health Act, 1848.

Further efforts at general sanitary legislation were made in the Nuisances Removal Acts of 1853, 1863, and 1866, and in Sanitary Acts of 1866, 1868, and 1870, but the first compulsory Acts covering the whole country were the Public Health Acts of 1872 and 1875, the latter of which is still in force. This 1830–1870 period was not without efforts to improve town life generally, and during its latter half the first public parks and libraries were opened. It is from the passing of the Acts of 1872 and 1875 that a new chapter of town life in England begins.

The general impression made upon the writer is that of the manufacture of enormous quantities of new wine, and the pouring of it into bottles for the most part entirely old. Since 1875 most of the new wine has gone into new bottles, with much more satisfactory results. The Reform Act of 1867, the Licensing Acts of 1870 and 1872, the Education Act of 1870, and the Public Health Acts of 1872 and 1875, and the Factory Acts which were consolidated in 1878, constitute a very remarkable group of enactments, and have undoubtedly provided a means of social salvation for the newer parts of our great industrial centres. No really new departure was initiated during the succeeding generation, and we must not let such Acts as Mr. Balfour's Licensing Act, the Workmen's Compensation Act, the Town Planning Act, and the National Insurance Act, which give a distinction to our own immediate times, blind us to the enormous importance of these earlier steps.

Before we proceed to examine briefly the very satisfactory results of the legislation of the 1870 decade—at least in those districts where there has been sufficient public spirit to take advantage of it—let us notice its comparative, even its almost absolute, failure in dealing with accomplished facts. It appears that in the very large industrial centres, and to a smaller extent in most industrial centres, a considerable proportion of the population is living under physical and moral conditions which are almost as bad as those which obtained fifty years ago, and that falling death-rates, and evidences of moral and educational progress, are quite compatible with this stationary condition of the old centres. The problem of dealing with these central slums has become more difficult with the lapse of time, and any solution vastly more expensive; but it is crying Peace where there is no Peace if the social legislation of last century is pronounced a success, when it has only been a very partial success. Here we get the basis of the cleavage in the ranks of the working classes. That basis is something more than a difference between skilled and unskilled. It is true that the unskilled labourer wants a cheaper house, and therefore gravitates to the old centres, but a large number of skilled artisans, and this is especially true in Birmingham, live in the central districts and conform to the central type. In spite of larger earnings, the families are brought up on a meagre housekeeping allowance, and exposed to all the lowering influences, physical and moral, of these central districts. The comparative cheapness of the houses, their proximity to works and goods yards, and to publichouses and picture palaces,

make them veritable traps for the easy-going and a boon to the vicious.

For the general improvement in sanitation which began in 1875 reference can be made to Chart I. in the Blue Book on "Public Health and Social Conditions" (Cd. 4,671, published in 1909).

It is perhaps more instructive, and certainly more interesting, to leave general statistics and to come to concrete examples. An attempt will be made to measure the success of this social legislation in three different places, typical of three sets of conditions.

Birmingham will serve as the first instance. Here we have a large town full, prior to 1875, of the gravest deficiencies, but with public-spirited citizens anxious to make the best of the chances given them by the legislation then just passed, and taking full advantage of it in its new industrial suburbs. As a result the contrast between the old centre and the new suburbs is very grave. Leicester represents another story. Here the burden of the past was much less heavy, and as the problem was attacked with much spirit, we find that remarkable success has been attained even in the older districts. Finally, we may take Middlesbrough, which is much the newest-built of the three towns, but which, for reasons which are easy to understand, has failed to develop on healthy lines.

To begin with Birmingham. In 1901 its population was 522,000, and 140,000 people were living in wards with a death-rate over 20 per 1,000; nearly half of this 140,000 were in wards with a death-rate of over 24 per 1,000. In 1912, the figures for which have just been published, St. Mary's Ward of the enlarged city, with 32,000 inhabitants, had a death-rate of 26·0; Duddeston and Nechells (41,000) of 22·0; and St. Bartholomew's (37,000) of 20·2.

To contrast with this, in 1901 the newer districts of Saltley, Balsall Heath, and Bordesley—all working-class suburbs—had a population of 135,000 and a death-rate under 15. In 1912 the death-rate had fallen to about 13. Districts still further out, and not then within the city, such as King's Norton and Erdington, had a death-rate under 10. For the ten years 1895–1904 we find, taking twenty of the largest towns in England, that the worst positions are taken by Liverpool, Manchester, Salford, Newcastle, Sunderland, Oldham, and Birmingham; so that Birmingham, though typical of these old industrial centres, is by no means the worst of its type.

If space permitted, an equally striking contrast in independence and moral standing could be shown between the central core, and the working-class suburbs in Birmingham. In the latter there would be seen elementary schools of the best type, with good playgrounds and well-fed scholars. Of these scholars a much greater proportion would be found passing into the secondary schools with which Birmingham is so well provided. We should find well-patronised free libraries and swimming baths. The churches and chapels would be seen working with a success altogether beyond what attends efforts equally strenuous in less fortunate neighbourhoods. The life of these working-class suburbs is open to many criticisms, as, indeed, is the average mode of life in suburbs in general, but in its broad outlines it attains a reasonable standard of physical, intellectual, and moral well-being. This is not true of the central districts.

Now let us turn to Leicester. At the beginning of last century Leicester had the modest population of 17,000; but increasing its population by about one-third in each decade, in forty years it had trebled its population, and in 1841 it was a town of just over 50,000 inhabitants. By 1871 it had nearly doubled its population again, and must have passed the 100,000 line about 1873 or 1874, when the new legislation was beginning to make its influence felt. By 1901 its population had once more doubled, the figures for that date being 212,000.

In merit as a healthy large town Leicester is almost uniformly second in a list of thirty-seven towns, and the one place which beats it is Croydon, which is more of the nature of a London suburb than a self-contained town. The only industrial town which is in a level with it is Coventry, which is very much smaller. Coventry is, of course, a very old town, but it is only since 1901 that it has become a modern industrial centre of real importance. Cardiff and Portsmouth, which are comparable to it in size, run it fairly near.

Leicester did not start with a particularly good death-rate, as during the thirty years from 1845 to 1875 its average death-rate was well over 25 per 1,000, and in nine of those years was over 27. Since 1875 its death-rate has never reached 25 per 1,000, and since 1882 it has only twice been over 20, and the average of the last five years is well under 14 per 1,000. About 50,000 of the inhabitants in the centre of the town live under conditions considerably, but not alarmingly, worse than the average. Its two worst wards, with a population of about 25,000, have a death-rate of just over 18 per 1,000; while two others, with about the

same population, have a death-rate of 15½. All this is due to an energetic and enlightened administration in sanitary matters acting under favourable historical conditions. Let us take one instance. The introduction of the water-carriage of refuse is always a considerable expense in money, and a great saving in life and health. In 1896 Leicester obtained compulsory powers for converting existing arrangements, with authority to contribute towards the expense. As a result, at a cost of £14,500, over 6,000 houses were provided with the best sanitary arrangements, and apparently in Leicester every house is now properly furnished in this respect.

Middlesbrough, our last example, is an example of how opportunities may be neglected, and an easy task turned into a difficult one. The town was not incorporated till 1853, and its population in 1901 was only 91,000. The really old part of the town has about 15,000 inhabitants, and the death-rate for that district for the ten years 1901–1910 was over 28 per 1,000. The town as a whole falls into two districts, east and west. The west, with a population of 58,000, has a death-rate of 19·7. Part of it has been built on a marsh. The east side, with a population of 34,000, has a death-rate of over 16. Not 10 per cent. of the houses are properly furnished as regards the water-carriage of refuse, and 7 per cent. still have the most primitive arrangements.

This comparison suggests that English towns have still three options : (*a*) to leave the pre-1872 portions of the town very much as they were at that date, while utilising legislation to the full to make its newer suburbs healthy and moral ; (*b*) to spend money freely on the older districts as well as to build the newer districts on sound lines ; and (*c*) to do the minimum, and it is not a very high one, allowed by the law in both old and new countries.

It would be interesting to discuss how far a case is made out for special legislation for the *pre*-1872 districts, dealing either with sanitation or licensing or both. Part I. of the Housing Act of 1890 was no doubt intended to apply to these districts, but its application is optional, and the option is now seldom exercised. The excessive sickness section of the Insurance Act may possibly be used as an inducement to improve conditions. As regards temptations to drink, Mr. Balfour's Act is being used to diminish these in the central districts, but progress is painfully slow.

A further question is whether the time has not come to make the standard of sanitary administration observed by the best municipalities compulsory on all urban areas. There is a considerable risk that the mistakes of Middlesbrough may be

repeated. During the decade 1901–1911 the growth of urban population showed decided signs of shifting. The greatest rates of increase were in the fifty towns having a population between 30,000 and 40,000, and next came the thirty-seven towns having a population between 50,000 and 75,000. It is in towns of this size that the temptation comes most strongly to repeat the mistakes of Middlesbrough.

F. TILLYARD

REVIEWS

Indian Currency and Finance. By JOHN MAYNARD KEYNES, Fellow of King's College, Cambridge. (London : Macmillan and Co. 1913. Pp. 263.)

THE purpose of this work is to give a critical exposition of the Indian currency and banking system. The time of its appearance may have been determined by the very energetic but ill-considered attack on the Indian monetary administration made last autumn, but the phrasing of some passages rather suggests that they were originally written as a memorandum or report for official use. In any case, the book is clearly the result of prolonged and detailed study by one who has had access to the best sources of information.

Mr. Keynes has undertaken a task of no ordinary difficulty. What he says in speaking of the Indian reserves is applicable to the whole Indian system :—"The outcome partly of historical origins, it has no logical basis, is exceedingly difficult to understand, and has often led in consequence to a good deal of misunderstanding" (p. 172); and again, "the objects to be attained are simple, but the methods of the Government are, largely for historical reasons, exceedingly complicated" (p. 124). It may be said at once that Mr. Keynes has unravelled the complication with perfect mastery ; that he has given a thoroughly lucid account of the whole question, or rather series of questions, at issue ; and that whether or not his judgments on these questions are accepted, as I think they must be, the book itself is, and is likely long to remain, the standard work on its subject. It is, so far as I know, the first complete account of the Indian banking and currency system which has yet appeared ; it contrives, while explaining all the important details of the system, to make its essential factors and principles stand out in clear relief ; the handling throughout shows remarkable ability, and the style is beyond praise.

The exposition is so thoroughly logical and consecutive that

the critic cannot do better than follow the author's order in dealing with the various topics treated.

In chapter i. Mr. Keynes gives a very terse sketch of the existing currency position in India, including a useful list of the legislative or administrative Acts, never systematically set forth by authority, on which the system rests. It leaves the present position perfectly clear. But incidentally, in explaining how the present position came about, Mr. Keynes is led to refer to the "broad historical facts." On these he says that he does not intend to spend time; but he has allowed himself to make some very disputable statements. When a book is so thoroughly sound in its main contentions, it may seem ungenerous to take exception to *obiter dicta* on matters lying outside its selected province; but one or two passages seem to call for remark. Mr. Keynes represents "the silver interests"—by which phrase I suppose he denotes those who favoured the re-monetisation of silver, though it is not usual to speak of their opponents as "the gold interests" —as holding that "a depreciating currency is advantageous to a country's foreign trade." This is hardly the kind of view which *à priori* one would expect to be held by the many able Governors of the Bank of England who were active leaders in the movement, or by Sir David Barbour, and many others who might be named. It would better represent the misunderstanding of bi-metallist views common on the part of the "sound currency" men who opposed them, and whose principles Mr. Keynes elsewhere rates at their proper value. The bi-metallist position can be briefly stated. They conceived the facts to be broadly that since 1873 gold had steadily appreciated, while the Indian currency down to 1888 had fairly maintained its value, slightly depreciating from 1888 to 1893. Their essential principle was that the persistent appreciation of a monetary standard was injurious to the country concerned, and should be checked; everything else logically followed from this, though in point of fact it was the break in Eastern exchange which first arrested the attention of the business world. As far as foreign trade was concerned, their position was that a country whose currency was stable, like India, would have an advantage in dealing with a country like England, whose currency was appreciating. Their arguments always implied that the rupee practically maintained its purchasing power. If the rupee had really been depreciating, the argument would have been deprived of its main premiss. They also held that for choice a depreciating standard is more stimulating to national production than one which appreciates.

But this contention related to the national output, and had no special application to the movement of foreign trade. Now, their cardinal doctrine that a continued fall of prices is a drag on progress may be, and is, disputed. But when, after 1896, the bi-metallist aim was realised in a quite unexpected way, by the nearly fivefold increase in the production of gold, there were few of their opponents who did not welcome the even excessive reaction in the price movement. *Post hoc, non propter hoc.* But bi-metallists may, at any rate, congratulate themselves that the price-reaction has been accompanied by just the remarkable expansion of trade, and especially of trade with the undeveloped and borrowing countries, which they had expected and predicted in that event.

Chapter ii. deals with the gold exchange standard system. It is one of the ablest chapters in the book, and I shall be surprised if it does not have a marked effect on currency views in this country. Mr. Keynes contrives in twenty-two pages to make a survey of the world's currency systems, showing an intimate knowledge of their really vital or pivotal features; and yet the exposition is perfectly lucid, and the broad results stand out unmistakably. There is no doubt that to the ordinary Englishman, whose ideas on currency matters are not appreciably advanced beyond those of Lord Liverpool, the Indian currency system appears artificial and exceptional. Mr. Keynes easily shows that the English system, or rather the English theory, is the exception; and that the world to-day, England included, is really working more or less on the Indian principle. What is this principle? It is, in Mr. Keynes's words, "the use of a cheap local currency, artificially maintained at par with the international currency or standard of value" (p. 36). As the most usual method of maintaining parity is by selling gold exchange on international banking centres, this system is usually known as the gold exchange standard. Mr. Conant and other writers speak as if this gold exchange system were ideal; and Mr. Keynes, "speaking as a theorist," holds that "it contains one essential element in the ideal system of the future" (*ibid.*).

But the system is, of course, exposed to two great dangers. If the local currency is *too* "cheap," it invites illicit issue; and this, if extensive, will destroy the parity. On the other hand, if the local currency is issued with a content-value near to its face or exchange value, then a slight rise in the value of the metal will leave the seigniorage on the coin negative, and the currency will instantly disappear in the melting pot. This latter difficulty

would, of course, not occur if the local currency were paper. But as things are, the Indian Government has found illicit coinage rampant; while in Mexico, the Philippines, and the Straits Settlements, a sudden rise in silver caused the disappearance of whole currencies. It follows that all Governments adopting this system on a silver currency basis must be greatly concerned in steadying the price of silver. Yet, curiously enough, as was pointed out by the American Commission on International Exchange, the Indian Government, by its extremely irregular appearances in the silver market, is the principal cause of the fluctuations in the value of that metal. The system has another serious consequence, predicted by bi-metallists before its introduction into India. It tends to replace silver by gold in the native hoards. Just as a Frenchman buys and sells small parcels of Rentes instead of opening a banking account, so the Indian uses ornaments. When the rupee contained its face value of silver, silver might be used for this purpose. Now that the rupee circulates at an artificially appreciated value, there would be a heavy loss on turning silver ornaments into rupees. He therefore now uses either gold ornaments or sovereigns; and this is the main cause of the increased absorption of gold by India. These are points which Mr. Keynes may have omitted for purposes of compression; but they deserve notice in some future edition.

The interesting sketch of the origin of the exchange system (p. 31) calls for a word. Mr. Keynes finds this origin, so far as practice is concerned, in the method adopted during the second half of the eighteenth century for regulating the exchange between London and Edinburgh. It was also shown, in the celebrated Report of 1804 on Irish Exchange, that the same system was in use in Ireland. But it was, in fact, the general system on which English country banking was carried on in those times. When the country banker discounted bills for his clients, "cash" meant either the banker's own notes or a draft on his London agent; and the draft was preferred in the larger operations, and came to be regarded, like a credit with the Bank to-day, as the highest form of "cash." We might, indeed, go back to the Middle Age, and find in the European national currencies, all silver kept at parity with the gold besants of the Byzantine Empire, an anticipation on a larger scale of the system which appears to many as the latest novelty.

As regards the recent revival of the system, it was undoubtedly the example of Holland, both at home and in Java, which established the practice. (Why, by the way, does Mr.

Keynes describe the Dutch system as "crude" (p. 31)? The holding of foreign bills would seem to be as effective as the keeping of foreign credits, especially as these bills were largely on London.) Among the writers who have contributed to the modern vogue of the system, of whom Col. J. T. Smith was one of the earliest and ablest, Mr. Lindsay deserves the place of honour, and it is satisfactory to find him at last coming to his own in this book. But the series of able papers written by Dr. Van den Berg, some of them for the information of the Indian Government, also deserve to be put on record; and with the later developments of the system, the name of Mr. Conant will always be associated. Mr. Keynes claims for India that it was the first country to adopt the system in its complete form. But this seems to many persons, and especially to foreign critics, exactly what the Indian Government has not done. Neither the upper nor the lower limits of parity are secured by a definite systematic Act. Fifteen rupees are obtainable for a sovereign in India (and generally in London) only "so long as a Notification of 1893 is not withdrawn" (p. 6). Mr. Keynes himself notes (p. 7) that the Government have given no binding undertaking to sell gold exchange at a fixed price. This is the keystone of the whole system; to leave it as a vague understanding is to invite distrust.

In chapter iii. the Indian paper currency is considered. Here, again, Mr. Keynes goes straight to the root of the matter. The characteristic advantage of paper as contrasted with metallic currency is that under a suitable system of issue the note may be used to give elasticity to the circulation, and thus to prevent stringency due to seasonal and other causes, a pressing need in India. Needless to say, the English note issue is absolutely deprived of this advantage by the Act of 1844, almost as absurd in this respect as the United States reserve law. "What would be thought," says Mr. Keynes, "in France or Germany, or in any other European country, if an expansion of the note issue could not be made against the discount of home bills, but only against a corresponding deposit in cash, cent. per cent.? Yet this is the position in India" (p. 180). And in England, it may be added, on whose unhappy model the Indian system has been planned. When, in 1902, Spain was proposing to introduce the English system of issue, M. Théry well said that but for our use of cheques the system would have been impossible in England, and that it was quite out of the question for any other country. Spain took M. Théry's advice; it is to be hoped that the Indian administration will weigh Mr. Keynes's suggestions. For India

the matter is of the first importance, for there is a very marked annual seasonal fluctuation in her discount rate, the minimum varying pretty regularly from about 3 per cent. in the slack to 8 or 9 per cent. in the busy season (*cf.* p. 243). This variation is largely due to the cost of sending money from London to India for short loan purposes, and therefore might be greatly reduced if Government were to fix exchange with London at 1s. $\frac{4}{8}$d. But Mr. Keynes shows conclusively that there are serious objections to such a course, and that the natural remedy is to provide for proper elasticity in the paper currency. A minor defect in the Indian currency, noticed later (p. 95), is of importance because it checks the increased use of paper which is so much to be desired. There are not adequate facilities for the exchange of notes into coin. Thus in the Punjab, where the sovereign is displacing the note, the difficulty of cashing the note seems to be the principal reason. This provides another illustration of the widely observed fact that a note issue cannot be effectively circulated except by an institution engaged in ordinary banking business: one of many important arguments for a State Bank in India.

Chapter iv. deals with the proposal for a gold currency in India. This proposal, the special hobby of the Fowler Committee, whose report will not rank high with monetary experts, seems to have found favour with Lord Crewe and many high Indian officials, and is supported by many persons who imagine that it means the introduction into India of the English system. Is such a general use of gold as currency in India a thing to be desired? "My own answer to this question," says Mr. Keynes, "is unhesitatingly in the negative" (p. 89). Most of us will probably agree. He gives excellent reasons for his position. "A gold standard is the rule now in all parts of the world; but a gold currency is the exception." (How many English public men realise the distinction, or are aware of the fact?) "I think I am right in saying that Egypt is now the only country in the world in which actual gold coins are the principal medium of exchange." The gold exchange or gold parity system, as is obvious, admits of large economies: it was mainly on this ground that Ricardo advocated it. Mr. Keynes finds two further and forcible arguments against an increased use of gold in India. He shows clearly that it would tend to *weaken* the gold standard reserves; and, again, it would check the development of the paper currency, to which India must look for the elasticity of her system. There is another capital advantage arising out of

the gold exchange system which Mr. Keynes does not mention. It lends itself, as no other does, to the scientific regulation of the standard, if this is ever to be achieved. Regulation by seigniorage on face-value-content coins seems to present grave practical difficulties. Mr. Keynes seems to look forward to some scientific correction of the standard of value. He observes (p. 101), "It is not likely that we shall leave permanently the most intimate adjustments of our economic organism at the mercy of a lucky prospector, a new chemical process, or a change of ideas in Asia." More than a quarter of a century ago, when the present writer used very similar words, he was roundly abused. But a good deal of water has gone through the mill since then. Mr. Keynes' dictum has aroused no protest, so far as I know, and will be cordially endorsed by a large body of opinion.

The case thus made out against encouraging the use of gold currency in India seems to me exceedingly strong, and will take a good deal of answering. Generally, too, one would entirely agree that convertibility into metal, not metallic content, is the best principle for national currencies, *if we are to confine ourselves strictly to the currency point of view*. Where, however, as in England, the constitution of the banking system, and the careless habit of the people, are such that it is impossible to secure the provision of adequate banking reserves, I am inclined to agree with those authorities who oppose the further supersession of gold in currency, on the ground that the coin thus used might be called in, in exchange for notes, at a time of serious emergency, when it would prove an invaluable first line of defence. But this consideration does not apply to the case of India; because, as Mr. Keynes rightly insists, it is just at such a time of crisis that the Indian would hug his gold. It may be assumed, then, that the balance of argument, on economic grounds, is against the increased currency of gold in India. But there are those who, while not concerned to deny this, hold that political considerations make it desirable. High authorities, both Anglo-Indian and Indian, urge that a strong preference exists for a gold currency, and that even if this has merely a sentimental basis it should be considered, and may justify the expense entailed. This is eminently a question for the Commission; but so far as outsiders can form an opinion, the preference in question is confined to a relatively small class of persons. It can hardly be described as national, nor does there seem any sufficient reason for humouring it in face of the very substantial disadvantages which have been noticed.

There is even less reason for the proposal to establish a Mint for gold coin in India, and Mr. Keynes rightly opposes it. If it is desired to provide a market for gold, he would prefer that the Government should oblige themselves to purchase bars for currency as the Bank of England does under the well-known Clause 4 of Peel's Act : an interesting and useful suggestion. His concluding sentence is quite in Adam Smith's vein : "The establishment of a Mint, however, would flatter at small expense an ignorant vanity. The Government, by granting it in response to popular appeal (though I doubt whether, in fact, there is any such appeal), would have a pleasant feeling of being democratic on an occasion when to yield involves no more evil than any other expenditure on a piece of fairly cheap ostentation" (p. 87).

The next chapter, on council bills and remittance, is a very clear statement of a perplexing subject, full of pitfalls. Mr. Keynes is specially concerned to show that it is a mistake to suppose that the Secretary of State's action in regard to the amount of council bills offered can in any important degree affect the volume of the rupee circulation (pp. 109–113). He also shows the uncertainty as to the precise gold points of exchange in India, arising from the fact that gold may come in from Australia or Egypt, as well as from London. The chapter concludes with an interesting balance of remittance for India, and an analysis of the Indian home charges, at present about nineteen millions sterling.

Chapter vi. (pp. 124–195), on the reserves and cash balances, is the longest and most elaborate in the book, and is full of interest from beginning to end. In it the whole reserve position in India is subjected to a most searching and able examination, in which account is taken of all probable demands upon the Government, whether for gold or rupees. In the course of this inquiry the complications of the various reserves are carefully explained : there is an excellent history of the critical events of 1908, when the Indian system was first seriously tested ; and an estimate is given of the amount of the rupee circulation. Mr. Keynes also raises the question whether the gold standard reserve is a purely currency reserve or in part a banking reserve (pp. 157–166). He concludes, after a very interesting discussion, that in practice the Government will not be able to restrict its responsibility to the currency. Here, again, we have an argument for a State Bank, as Mr. Keynes notes in a later chapter (p. 236). The difficulty of treating currency questions without reference to banking conditions is similarly illustrated in the

Nicaragua currency scheme recently framed by Messrs. Conant and Harrison, where it has been considered advisable to combine provision for seasonal elasticity with provisions for the maintenance of the gold exchange standard. Mr. Keynes is very good where he shows (on p. 176) that India can gain nothing, and may lose, by holding the gold standard reserve in India rather than in London. But he recognises "a powerful, natural, and yet unfounded prejudice" to the contrary; and finally concedes that "India must be allowed, I suppose, to hug her sterile favourite." The comparison Mr. Keynes draws between this Indian prejudice and the Continental policy of holding large gold reserves does not seem so happy. He can only see what he calls "the original sin of mercantilism" in the anxious care with which most European Governments accumulate and guard their gold reserves. But it is notorious that their action is determined by political more than by purely banking considerations. They always have in mind the emergencies connected with war, more particularly the probable withdrawals for hoarding, and the enormous expense of mobilising their huge armies, for which no adequate preparation is made here. They believe that at such times large cash reserves are indispensable, even to countries with the best credit. Thus, even as late as February, 1913, the German bankers put the amount still hoarded in consequence of the Balkan War crisis as nearly £25,000,000. Bismarck said, in 1871, that but for the war treasure, Germany would not have been able to gain the two days' start which prevented the invasion of the whole right bank of the Rhine; and Riesser estimates that altogether the German Treasury would require £122,500,000 for outlay during the first six weeks of war. Right or wrong, the opinions of the Continental Powers on this matter are based on the most thorough and up-to-date historical and statistical research. It would take a good many Budgets to convert them to the happy-go-lucky reserve policy which prevails here.

Summing up the results of this chapter, Mr. Keynes fixes the necessary currency reserve at about £40,000,000, apart from the various Government balances, and he thinks that this sum would also be sufficient to meet the adverse balance on all accounts "likely to emerge in a single year," perhaps even sufficient in the case of two successive bad years (p. 169). It is perhaps the first estimate which has taken account of *all* the possible liabilities of the Government, and the argument carries conviction throughout. It should be noted that in this chapter (*e.g.*, p. 140), as in

other places (*e.g.*, p. 110), Mr. Keynes often uses "rupees" to mean currency notes as well as rupee coins.

Chapter vii. contains a concise but admirable account of the Indian banking system. Mr. Keynes admits his indebtedness, so far as the Presidency Banks are concerned, to Mr. Brunyate's Account, published in 1900; but he has used it to excellent purpose, and brought the figures up to date. The description of the special business done by the Exchange Banks shows his remarkable familiarity with actual business practice; and his analysis of their banking position is singularly clear and acute. The passage in which he shows that the strength of exchange partly depends on the policy adopted by these banks may be specially noted. The account of Indian joint-stock banking, too, is of great interest. Here our author finds much to criticise, and his strictures have received a striking justification by recent events. After analysing such returns as are available, he observes that, in his opinion, "these figures reveal an exceedingly serious state of affairs" (p. 224); and he says of the smaller banks that "it is hard to doubt that in the next bad times they will go down like ninepins." Within six months the forecast has been realised. His other criticisms in this chapter seem to deserve serious attention, especially what he says of the marked fall in the reserve ratio of the more solid banks, and of the growth of a kind of wild-cat banking, unknown anywhere else in the British Empire.

Finally, the chapter concludes with a statement of the arguments for and against a State Bank in India. One of the strongest is to be found in his last chapter, on the Indian discount rate, where he shows the wide annual fluctuation in the rate. It might, indeed, almost be said that most of the practical suggestions in the book point in that direction. But he is under no illusions as to the practical difficulties in the way, and is not sanguine that anything will be done in the matter while times are good. "We may have to wait," he concludes, "for the lessons of a severe crisis."

The main result of this remarkable inquiry may be summed up in two sentences. The Indian gold standard system is in principle sound, and in conformity with the general practice in almost all countries; while, on the other hand, the banking and note-issue systems are anomalous, and call for reform, especially on the points of elasticity and central control. India, in short, is diagnosed to be in very similar case to the United States. These conclusions seem amply made out, and, indeed, unassail-

able. At such a time as this, when the whole system of Indian finance is under examination, it is of the greatest importance that fundamental principles, of the kind here dealt with, should be established beyond dispute. This is exactly what Mr. Keynes' book has accomplished. It is a most timely achievement, a service of the highest practical importance.

If the book is regarded from the academic standpoint, it seems equally welcome. It is a notable departure from what has been called the fashionable style in recent English economics. Technical apparatus is kept in its place—behind the scenes; evidenced, but not advertised; as an architectural painter will use perspective without exposing his technique. The contrary habit is severely but justly criticised by Professor Nicholson in an article on the *Vagaries of Recent Political Economy*, in the current number of the *Quarterly Review*. Professor Nicholson will find Mr. Keynes' book refreshing. It is an emphatic justification of many contentions in his article. The "fashionable terminology and the usual curves" are here replaced by the purest English and the simplest statistical tables. Nothing, by the way, is better than the statistical work. No figures are given but such as are strictly relevant to the argument; they are handled with all due allowance for exceptional or disturbing causes, and their evidence is interpreted with unusual caution and sagacity.

There is not much room for originality on the fundamental principles either of currency or banking. This is especially the case with regard to currency. The searching discussions which followed the monetary disturbances after 1873, and the admirable work of men like Dana Horton, Lindsay, Conant, and others, have led to a remarkable advance, almost a revolution, in expert opinion on monetary subjects. But most readers will learn the extent of this advance for the first time from Mr. Keynes' book; and the most *blasé* student of currency literature will be delighted by the freshness of the handling throughout, and the acute and valuable observations with which the work abounds. The general public, indeed, may find some passages rather startling, as where Mr. Keynes refers with scarcely veiled contempt to the "sound currency" maxims of the last generation, or to the mechanical principles on which the venerable Act of 1844 was based. But they will be reassured by the evidence given on every page that Mr. Keynes knows what he is talking about, and has taken full account of business practice in this and other countries. See, for instance, the very sound appreciation given in chapter ii. of

the international banking position, and the many passages dealing with exchange. The tone of banter adopted on p. 143 may be regretted, for an honest concern to prevent even the suspicion of corruption is hardly a matter for ridicule, least of all in these times; but this apart, the author's general caution and reserve are beyond criticism. Academic bureaucrats may be interested in a dictum on p. 238: "It is a remarkable thing that the two classical pronouncements on the fundamental problems of Indian finance which have stood the test of time—Mr. Dickson's in 1867, on the question of a Central Bank, and Mr. A. M. Lindsay's, in 1878 and subsequently, on the regulation of a gold standard, should both have come from secretaries of the Bank of Bengal, not from high officials of State." Wisdom is also shown (p. 221) where Mr. Keynes urges that "an insistence on due publicity, rather than compulsion or regulation in matters of policy, is likely to be the best remedy" in dealing with banks of established position.

But felicitous passages abound, and one might go on quoting until the author's copyright was seriously infringed. Enough has been said to show that while academic students will be grateful for this acute and informing work, it will be read with as much interest, and perhaps even greater appreciation, by men of business and affairs. It deserves to rank in this respect with the work of Bagehot and Withers. The author, indeed, gives proof of a remarkable and very rare union of qualities which place him in the front rank of living economists. He combines with first-rate analytic power and grasp of principle a thoroughly realistic bent and wide familiarity with business and administration. His exposition is quite exceptionally lucid; his judgment, sagacity, and caution are evident throughout; his style is terse, exact, incisive, and eminently readable. Generally, and in this point of style more especially, the book constantly recalls the brilliant work of Jevons.

H. S. FOXWELL

Indian Offer of Imperial Preference. By SIR ROPER LETHBRIDGE, K.C.I.E. (London: P. S. King. 1913.)

SIR ROPER LETHBRIDGE has made the important discussion on imperial preference, which occurred last March in the Legislative Council of the Governor-General of India, the text of a fresh plea for the adoption of that policy to regulate the relations of England with her great dependency. The imposition of free trade in opposition to "the considered wishes of the Indian peoples" is,

in the writer's opinion, "monstrous arrogance and oppression." Protection against all the world, which is what most educated Indians favour, might, it is admitted, raise the cost of living in India, and is impracticable so long as England controls its destinies. Sir Roper Lethbridge finds in taxation of foreign imports and imperial preference salvation for both countries, and draws a glowing picture of the consequent rapid expansion of mill industries, which will relieve "the congested agricultural industry and develop the immense latent resources of the country." Notwithstanding Mr. Austen Chamberlain's laudatory preface, the pamphlet cannot be called a weighty contribution to that "full, temperate, and unbiased consideration of the whole question" for which the Indian Finance Member pleaded. Its whole statement of the case is exaggerated. Of this an example will be found on page 124, where the writer refers to the millions of acres of wheat land in the Punjab which will be brought under canal irrigation and the plough "the moment that the stimulus is applied . . . of an assured preference of 2s. a quarter." During the past twenty years the construction of new canals in the Punjab has been carried out with the greatest energy and success. Colonists have flocked to the new lands the moment they became available without any stimulus but the keen land hunger that exists. There is little congestion in the Punjab, and the "armies" of "landless cultivators" are a figment of the imagination.

Sir Roper Lethbridge assumes that the one thing needful to secure that rapid development of mill industries, which he holds to be urgently necessary "to relieve (India's) congested agricultural industries" and to furnish the Government with a means of obtaining money to replace the lost opium revenue, is import taxes on certain commodities which non-British countries send to India, and export taxes on certain commodities which India sends to them, together with preference in British markets. Agricultural congestion exists in some crowded districts in the east of the United Provinces and in parts of Bihar and Bengal. Taking the country as a whole it is not a serious or an increasing evil. In the most thickly populated track, the United Provinces, the growth of population in the past twenty years has been extremely slow, and this is also true of Bombay. The population of the Punjab declined between 1901 and 1911, notwithstanding a large extension of the cultivated area. Even in Bengal the rise in twenty years was only 6 or 7 per cent. There is scope for the expansion of mill industries, but very rapid expansion is fortunately not a matter of overwhelming importance. The country is

not ready for it. The want of trusted leaders of industry, of trained managers, and of efficient workmen is a greater obstacle than any commercial policy imposed by England.

There is at present an export duty on rice and there are moderate import duties on a large list of commodities. It is probably quite true that a finance minister, who was faced with large recurring deficits, could increase the number of the former and enhance the rate of the latter in the case of non-British imports, without provoking retaliation. It may further be admitted that his action would not raise the cost of living for the all-important agricultural class, which clothes itself with the products of Indian and English cotton mills and is for the most part content with crude native sugar. But it is difficult to assert that the need for such measures has arisen. In his Budget for the current year Sir Guy Fleetwood Wilson allowed for a reduction of two millions under opium, putting the anticipated revenue at less than one and a half millions. But he was able to show a surplus of £1,300,000. The loss of the opium revenue is, none the less, a serious matter, for receipts from land revenue, which contributes 21 millions to the revenue, are liable to violent fluctuations, every Indian Budget being "a gamble in rain." Sir Roper Lethbridge's assertion that there is little room for further enhancement of the land revenue is open to argument, and his statement that "it already absorbs about half the proceeds of the cultivation of the soil" is wholly misleading. Surely he does not believe, as Mr. Keir Hardie once did, that the Government takes the money equivalent of half the produce. Mr. Keir Hardie confounded half the produce with half the rent which the landowner receives, or would receive, if he let his land instead of tilling it himself. Of course, the actual assessment is often far below the standard. The excise revenue is increasing, notwithstanding Sir Roper Lethbridge's curious misstatement that the Indian peasant "does not drink alcoholic liquors." He fails to notice the more satisfactory source of revenue which the Government possesses in the increasing receipts from railways and canals. It can borrow for productive works at less than 4 per cent., and in the last four years the interest earned by railways on the large capital invested in them by the State has been $4\frac{1}{2}$, $4\frac{3}{8}$, 5, and $5\frac{9}{16}$ per cent. In 1912–13, a very prosperous year, the railway surplus was five and a half millions. Productive irrigation works earned 9 per cent., and the surplus, after deducting loss on protective works, exceeded one million.

There is no attempt to explain in detail how each of the proposed taxes will help the development of Indian mill industries.

Till labour and other conditions change, taxation aimed at foreign countries may well operate mainly to divert work from Continental to English mills. If this occurs there may be a very awkward clamour for the closing of the breach in the protective wall. Special stress is laid on the cases of jute, cotton goods, and sugar. In raw jute India has a monopoly. Between 1876–77 and 1906–7 the value of the exports rose from 1¾ to 17 millions. Most of the jute goes to foreign countries. It cannot be argued that the Calcutta mills, with all the jute in the world growing at their doors and their command of cheap labour, require protection. They supply India, and their exports rose in the period abovementioned from half a million to over ten. The amount of cotton goods received from countries other than England is very small. On page 63 Sir Roper Lethbridge says that certain figures given by Mr. Dadabhoy show conclusively that the dangerous competition to the Indian industry comes from Japan and China. Mr. Dadabhoy pointed out that Japan had ceased to buy Indian cloth or yarn, and that exports of cloth to China had shrunk enormously. He did not allege that Japan was sending cotton goods to India, though as a matter of fact she does send a little. Our silver policy seems to favour Japanese and Chinese products unduly, and it would not be hard to justify an enhanced import duty.

It is true that there has been a remarkable growth in the imports of refined sugar, and a shrinkage in the area put under cane. Cotton has become a more important canal crop, and the canal officer probably welcomes the change, because cotton takes much less water. The yield of sugar in India is very low, probably one-third of that in Java, which now commands the Indian market. The methods of extraction are primitive, and no country can now produce sugar successfully which does not adopt the "central factory." There are special difficulties about its adoption on a large scale in India, and till they are overcome it is not much use to apply the stimulus of an import duty.

As regards preference, Sir Roper Lethbridge quotes a resolution of a body of Indian planters in which raw cotton is included in a list of commodities fitted to receive it. But probably he does not expect England to tax American cotton. As to wheat, the 2s. duty has been jettisoned, and possibly may not be fished up again. India can readily dispose of all its surplus wheat. Indian tea captured the English market long ago. Protection might stimulate the growing of coffee, cocoa, cinchona, and rubber in the limited parts of India suited to their production.

Tariff reform and imperial preference might enable the Indian Government to raise more money without appreciably adding to the burdens of the people, but no such marvellous development of Indian industries as the writer anticipates would follow. If England adopts tariff reform, the inclusion of India is not likely to do it any harm, and may perhaps be of some advantage to it. It would at least go some way to meet the views of the small educated class. Their opinions on the question, if not identical with "the considered wishes of the Indian peoples," who have never heard of the matter, can no longer be met by a blank refusal to consider it.

J. M. DOUIE

Advance, India! By M. DE P. WEBB, C.I.E. (London: P. S. King and Son. 1913. Pp. 184. Price 5s.)

To the chairman of the Karachi Chamber of Commerce we owe in a great measure, if indirectly, the inquiry into the currency policy and financial methods of the Indian Government which is now proceeding before a Royal Commission. Swayed, I doubt not, by honest conviction, Mr. Webb has discharged, somewhat violently perhaps, a public duty and, thus far, his zeal and energy are praiseworthy. Yet there is much in the presentation of his case to which objection may be taken on political, as well as on economic, grounds. In a previous book, *Britain's Dilemma*, Mr. Webb set forth his charges against the Government of India and the India Office—charges which are now engaging the attention of the Commission. The present publication recapitulates and particularises, but adds little that is new beyond an interesting chapter on Indian banking and a much-to-be-deprecated, because bitterly partisan, attack on the British Chancellor of the Exchequer.

The author's theme is, as before, the Report of the Indian Currency Committee of 1898, commonly called the Fowler Committee. That Committee, approving the Mint Closure Act of 1893, recommended that the sovereign should be legal tender in India, the mints opened to the coinage of gold, and the profits on silver coinage kept in gold as a reserve fund for maintaining the exchange value of the rupee. The failure to open the mints to the coinage of gold and to encourage sufficiently its circulation; the continuance of rupee coinage on a large scale; the accumulation of excessive cash balances and their alleged mis-use in London—these form the burden of Mr. Webb's plaint.

And the remedy? "India should have a gold currency; and the sooner the better." It is, we are told, "India's ambition to be equipped with the best monetary tools and the best monetary system"; with which ambition, it is claimed, the Government of India is in sympathy, while the India Office thwarts India's intentions in the interests of a Lombard Street plutocracy. India's ambition is difficult to gauge, but it may be safely said that she concerns herself little with monetary systems, while the views of the representatives of her mercantile classes who do so concern themselves are generally opposed to the policy of Mr. Webb.

Impolitic, and no longer true, is the statement that "the divorce of the purchasing power of coined silver from that of uncoined silver deprived many of the poorest and most ignorant of a portion of their savings." In the days immediately following the closure of the mints the statement was plausible; but the subsequent course of the silver market, in spite of increased imports of the white metal by India, proved that legislation had merely anticipated the fall which more powerful, if more slowly operating, causes would assuredly have brought about.

The author's views on banking are peculiar, and his definition of the business of the modern banker unscientific. He is opposed to the creation of a State Bank, doubting "the wisdom of carrying banking concentration to a degree which, in case of accident, might jeopardise the welfare of an entire continent," and scorns the "theorist, or even the practical London banker (with no knowledge of India), who believes it possible to amalgamate the discordant elements of the Bengal, Bombay and Madras Presidencies." Yet he must be aware of the great area already served by the Bank of Bengal, and of the discordant elements amalgamated from Rangoon to Lahore. Instead, he advocates the multiplication of "Indian banks, created in India by Indians"; rejoices that "more Indian banks are coming into existence every year. Such developments can only have the happiest results," and gives a long list of banks which are "doing good work for India." The list affrights me! It includes the Credit Bank with seventeen, and the People's Bank with sixty-four, offices in India. Both institutions, with several others of the like class, have since suspended payment, and the whole position of Indian-managed banks has been dangerously shaken! "Credit," wrote Bagehot, "is a power which may grow, but cannot be constructed." Mr. Webb, however, would jerry-build it!

Part III. consists of the *précis* of evidence prepared for the

Royal Commission by Mr. Webb. It should be read in conjunction with the report of his examination in the recently issued "Minutes of Evidence" (Cd. 7069). In that searching examination much of the case set forth in this book crumbled away. There remained little but the justifiable condemnation of bloated cash balances and of the neglect to hold at least a portion of the coinage profits in actual gold. Events have moved rapidly of late in the East, and the statement that "India is the land of dear capital and England the land of cheap capital" almost needs inversion to be a modern truism. India floats her loans on better terms there than she can do in this country, and Mr. Webb could not deny, when questioned, that a great industrial concern can be financed the year round in India on terms which would be cheap enough here. At the last annual meeting of the Indian and General Investment Trust, the chairman said "It is a curious feature of the time that, whereas the rate of interest is rising in almost all other countries, in India it is still tending downwards." India has her recurring periods of dear money, but we must not confuse seasonal stringency with chronic scarcity.

A difficult and highly technical subject has been handled, on the whole, with more practical boldness than theoretical knowledge, and the author has not justified his unsparing criticism of the existing currency system of India. Mistakes there have been, vacillation and hesitation there have been, but the great currency experiment has been a success. India has prospered mightily; her merchants, her traders, and her agriculturists have alike shared in that prosperity. And therein lies the justification of the currency reform. The time was ripe, however, for an investigation which would reveal the mistakes that had been made and provide against their repetition. Mainly by the tireless energy of Mr. Webb has that investigation been brought about, and he may, too, claim credit for having indicated by his criticisms the line which the inquiry should take.

H. M. Ross

Ārthā Neeti. By PROFESSOR J. SAMADDAR. (Published at Howrah in Bengal. 1913.)

THE book under review makes no claim to originality. It is an attempt to present, in the most elementary form, the principles of English Political Economy in the Bengalee language. Nothing worth mention has hitherto been done in that language in Political Economy, and it is to be hoped that as more is written on the

subject in the language of the people of the country, a distinct Indian school of economists will gradually be evolved. The present book, therefore, would deserve all the credit of a pioneer if only it had done its task in any tolerable manner.

We find it, however, a disappointing performance. The introductory chapter seeks to give a general idea of the history and development of the science. But this purpose has only been very imperfectly realised. The author's history of the science from the sixteenth century onwards is but a string of names which can leave no impression on the mind of the general student. A wrong impression is left by the way in which the conception of the Economic man is represented as the basis of an existing school of English economists. The descriptions of the Historical school, and of Professor Marshall and his followers, are very inadequate, and sometimes almost meaningless. About the Historical school, all that the author writes is: "The economists of this school arrive at their conclusions after considering the relation of the present social condition of a country to its history in the past. In their opinion, no conclusions on any subject ought to be arrived at without due consideration." Professor Marshall's characteristic principles are said to be, that "the character and efficiency of every man depend on circumstances," and that "progress in arts and industries can be achieved only if people are employed in those tasks for which they are specially fitted."

Worse mistakes lie scattered through the book. The author's explanation of the Law of Diminishing Returns, for instance, is absolutely meaningless; and he makes a mistake of the worst description. Here are his own words, translated: "In trying to increase the value of the produce of the soil by increasing the labour and capital employed on cultivation, the quantity of produce is gradually diminished." The explanation that follows is almost as meaningless as the enunciation. In the very next page he defines a "dose of labour and capital employed in cultivation" as "all the labour and capital employed on a field before the limit of productive employment is reached."

Some credit is due to the author for his renderings of economic terms into the Bengalee language. Yet even here, some of his efforts are scarcely felicitous. "Energy," "utility," and some other terms can be instanced.

A special feature of the book is the chapter on Co-operative Credit Societies, which takes up fully a fourth of the whole. There is more of exhortation and praise in the chapter than of science. There can be no doubt that the indebtedness of the ryot

and the grinding rates of interest prevalent in India, stand badly in need of a remedy, and that co-operative credit societies can do something in that direction.

There is a marked want of a due sense of proportion in allotment of space to the various subjects under discussion. Co-operative credit, as stated above, occupies a quarter of the book, while only half of that suffices for Money, Banking, International Trade, and all kindred subjects. The Quantity Theory, the doctrine of International values, Gresham's Law, the whole subject of Banking, and many other subjects get no consideration, while twelve pages have been devoted to a consideration of the policy of free primary education.

S. C. Das Gupta

Good and Bad Trade: an Enquiry into the Causes of Trade Fluctuations. By R. G. Hawtrey. (Constable and Co. 1913. Pp. 279.)

Mr. Hawtrey's essay is a continuous argument without footnotes or references, and the only writer to whom obligations are acknowledged is Professor Irving Fisher. The book starts promisingly. Most expositions of the theory of money are framed in such a way as to suggest, though they do not really imply, that the value of money is determined in some special and peculiar way. Mr. Hawtrey's manner of statement avoids this false suggestion. By seizing upon the proportion of their resources that people choose to keep in the form of money as the central fact through which the demand for money is determined, he makes it easy to see that the determinants of value, in the case of money as in the case of all other things, are simply the general conditions of demand and supply. The way of stating the matter which Mr. Hawtrey has adopted is, of course, familiar to pupils of Dr. Marshall; but it has not, so far as I am aware, hitherto found its way into ordinary books.

Mr. Hawtrey's purpose is not, however, to develop a theory of money, and he does not proceed far in this direction. His main thesis is concerned with the causation of fluctuations. As a means of investigating this problem, he starts with the abstract case of an isolated country without a banking system, and employing only paper money; and he inquires what would happen if the stock of money was suddenly diminished. Having answered this question, he asks the same question again in reference to more and more complicated conditions. Thus, he first takes

account of the existence of a banking system, then of international commerce, then of the use among commercial nations of a gold currency. He recognises that the most important form in which a diminution in the stock of money appears is that of a diminution of the stock of bank-money. "Something occurs to make the banking community reconsider their position in one of the countries where there is inflation, that is to say, where the amount of credit may have outstripped the prudent proportion to the supply of legal tender money" (p. 176). The results of the consequent reduction of credit on the part of bankers are traced in an elaborate deductive argument. The author then states generally, while admitting, of course, that a detailed proof of this statement would require much statistical investigation, that the movements, which his deductions suggest, are similar to those which in fact occur. "We have shown," he writes, "that the monetary organisation of the world might be expected to engender just such periodic fluctuations as do actually occur" (p. 215). Hence, he concludes, the explanation of fluctuations which he has proposed is, in a rough general way, "verified" in experience.

Mr. Hawtrey's deductive argument is, for the most part, a restatement in an elaborated form of commonly accepted analysis. A contraction of the bank-money supplied by bankers causes dealers to offer lower prices to manufacturers, and so, in turn, checks productive activity, until the resistance which wage-rates offer against conforming with the altered level of prices is overcome. The relations between the country primarily affected and other countries somewhat mitigates this result, because it allows of an inflow of bullion, which indirectly checks the fall of prices. "The depression is by this means alleviated in the area of stringency, but only at the cost of being extended in some degree to all the other countries" (p. 105). There is little to quarrel with in the general lines of this familiar reasoning. Sometimes a lapse occurs. Mr. Hawtrey repeats the popular argument that government authorities cannot steady industry by adjusting the period of their investments, because the money to be spent by government can only consist of money that would otherwise have been spent by private firms. He does not perceive that this argument contains a fallacy, nor is he apparently aware that the fallacy has been exposed. Still, his deductive reasoning as to the way in which an initial monetary disturbance tends to work itself out seems, generally speaking, to be sound. Furthermore, the steadiness and clarity of vision with which he follows

the thread of his argument through successive stages of complication are deserving of cordial praise. The method he has adopted is a difficult one, and to carry it through successfully demands the sustained effort of an able mind. Though the results attained are not novel, Mr. Hawtrey, in throwing open so well-constructed a thoroughfare towards them, has done a useful work.

There remains, however, one important criticism, which it is necessary to make upon the book as a whole. Mr. Hawtrey, as has already been indicated, is not content with analysing the way in which such a change as a contraction in the supply of bank-money works itself out. He argues—or seems to argue—further that, because in the real world monetary and banking movements are associated with industrial movements in the way that his argument leads him to expect, therefore in these monetary and banking movements the causes of industrial fluctuations have been discovered. He speaks in so many words of the "inherent tendency towards fluctuation" in "the banking and currency system which actually prevail in the world at the present time" (p. 216); and the whole drift of his discussion implies that the causes of fluctuations are exclusively monetary and banking causes. Such a point of view is exceedingly superficial. To show that a certain disease is always accompanied by certain symptoms, is by no means to show that the symptoms are the cause of the disease. It is undoubtedly the case that the fundamental causes of industrial fluctuations often make use, as it were, of monetary and banking systems as the medium through which they act. But there is no reason to suppose—indeed, there is abundant reason to deny—that they are themselves in any sense resident in these systems. Variations, for example, in the general bounty of nature, or waves of confidence or depression in the outlook of the business community, exercise much of their influence upon industry *through* the banking system; but they themselves lie wholly outside it. Mr. Hawtrey has failed to grasp this important point. As a consequence, he has shut himself off from what might have been a very interesting inquiry, namely, first, how far does the peculiar mechanism of the monetary and banking system *augment* the fluctuation-producing power of the causes that work *through* this mechanism from outside; and secondly, what is the relative importance of these causes as compared with those that originate within the mechanism itself? Furthermore—and this is a still more unfortunate result—the surprising defect in Mr. Hawtrey's argument, to which attention has just been called, makes itself felt continually

in the course of his exposition, and throws the whole picture somewhat out of drawing.

A. C. PIGOU

L'Organisation du Crédit en France (Étude comparée des principaux systèmes de Banque). By ALBIN HUART. (Paris: M. Giard & E. Brière. Pp. 348. Price 7 francs.)

IN issuing this book the author undertakes to fill the void in French economic literature occasioned by the absence of a scientific study of banking and credit, and expresses his surprise that such a work has not been attempted hitherto.

From the comparative standpoint there is much that is new in the book, but there is nothing novel in the author's treatment of credit transactions and the banking operations to which they give rise. His chapters on these matters hardly fill a gap in French literature; Victor Richard's *Traité Élémentaire des Opérations de Banque*, although not exhaustive, is an excellent work on the subject, while *Les Opérations de Banque*, by Courcelle-Seneuil, is a brilliant analysis of the economic side of banking and currency.

Apparently the work is intended to meet the needs of students taking a special course on the principal banking systems at the "École des Sciences Politiques," and for that reason the first twenty-five pages are devoted to an explanation of the various forms of credit, followed by the bases of a rational banking system. M. Huart advocates the principle of a single Central Bank, with sole note-issuing powers, and in view of this privilege he would have its operations limited in a very precise manner by legal enactments. Apart from its note issue, his opinion is that the functions of such a bank should be confined to the fixing of the rate of discount, the discounting and re-discounting of commercial bills, and advances on securities. It is to be doubted, however, whether a bank could successfully limit its operations in this way; and in any case it is unlikely that such an institution could exert the beneficial economic influence the author ascribes to it. A single Central Bank with the monopoly of note-issue may or may not ensure the industrial and commercial progress of a country, but in view of the unparalleled success of the British system, one is not convinced of the higher merits of the author's "banque rationnel." Economists, moreover, will be inclined to doubt the impartial examination of banking systems at the hands of a writer who states definitely, (1) that the position

of the Bank of France is superior to that of all the world's banks of issue, because of its absolutely private character and its independence of the Treasury; and (2) that the French banking system is better than similar foreign systems, since it lends itself admirably to the economic expansion of the country, and does not commit the errors of certain foreign banks, which imprudently convert their disposable funds into real estate and so entail the industrial framework of the country.

French banking is said to be situated exactly between the English system, much too restricted, and the German system, much too vast.

Considerable space is devoted to an examination of the crossed cheque: its use has not rapidly advanced in France owing to certain restrictions. The cheque must be presented for payment within five days, or eight days if drawn from one place on another; when circulating in the place in which it is drawn a 10 c. stamp is required, otherwise the duty is 20 c., and this tax the author believes has prevented the greater extension of the use of cheques in France. In this connexion the Clearing Houses of London and New York are compared with the Chambre de Compensation des Banquiers de Paris, and the result is interesting as showing how this method of centralizing the drawings of and on the various banks has grown.

The most interesting part of the book, and certainly the most useful, is that dealing with the actual working of the Bank of France. Its operations are treated from three distinct points of view: those of a credit establishment, of a bank of issue, and of its connexion with the Government Treasury.

Under the law of 1897 the Bank's note-issuing powers were fixed at francs 5 milliards 800 millions, and the balance sheet of 5th October, 1911, showed 5 milliards 530 notes in circulation. In view of its fixed limit the author is inclined to the opinion that the position of the Bank of France might become grave if the maximum is reached. He argues that the limit of note-issue should not be arbitrarily fixed by a parliamentary law, but that an enactment should be in force permitting the note circulation to be a varying one in proportion to the monetary situation, as revealed by the Bank's weekly balance sheet, since in the not unlikely event of the present maximum limits being reached, the Bank would be obliged to refuse further calls for credit, or, alternatively, to encroach on its reserve.[1]

[1] By the law of 29th December, 1911, the note-issuing powers of the Bank of France were raised to the maximum of francs 6 milliards 800 millions (£272,000,000).

Such a system is, we imagine, hardly practicable in these days, and judging by the present policy of the Bank of France, no change is needed. The French bank-rate tends to remain very steady at 3 per cent., and compares favourably with other European rates. For instance, the Bank of France rate from 1876 to 1909, with thirty-one alterations, averaged 3·13 per cent.; over the same period, the Reichsbank changed its rate 125 times, giving an average of 4·11 per cent.; while the Bank of England rate was changed 200 times, which gives an average of 3·28 per cent.; from which it follows that French commerce benefited to the extent of 0·98 per cent. over German industry and 0·15 per cent. over British industry.

The French Government derives a considerable income from the taxation imposed on the Bank's operations, and the author gives an instructive analysis of the position. The Bank of France, it appears, keeps the Government accounts free of charge, and taking into consideration this facility, the loss of interest on advances to the State, the cost of the manufacturing of bank notes, and the taxation the Bank pays on its productive circulation, it is estimated that the Government gains on an average francs 17 millions per annum from the Bank's operations.

The "productive circulation" of the Bank is arrived at by taking the totals of the portfolio, the advances on securities, and the bills to order.

While admitting the inequity of some of the taxes with which the Bank is burdened, we are inclined to think that the author under-estimates the value of the Government accounts. Most bankers are well aware of the advantages accruing to any bank which is the custodian of State funds, and it is no uncommon thing for interest to be paid on such credit balances. A bank carrying large State funds is frequently able to obtain a handsome return by utilizing the surplus as call money on the short-loan markets.

The extension of the branch banking system in France is freely discussed, but the conditions governing the opening of branch banks do not compare favourably with our British system.

The book also contains a good deal of interesting matter on the development of French credit establishments, and a study of the various methods employed leads one to the conclusion that the small farmer, the retail trader, and the industrial class are much better catered for than are similar classes in Great Britain. After showing the interconnexion of the credit establishments, the author proceeds to point out the defects in the elasticity of

the system, and draws instructive comparisons between the French institutions and the industrial banks of Japan and Germany and the Credit Populaire of Italy.

The chapters on foreign banking are largely given up to an examination of the French colonial banks, and a perusal of the working of the past few years is not without interest to the Englishman. The German policy of creating banks in foreign countries is, M. Huart thinks, a good one. The Germans are ever ready to extend their sphere of influence, and whenever there appears the slightest chance of the political or economic future of Germany benefiting, a bank, or group of bankers, furnish the necessary capital for opening a branch in the centre in question. France, on the contrary, appears to rely on the strength of international agreements, and is committed in a greater or less degree to international banking consortia, which, however excellent the business they bring to the French financiers, are deplorable from the State's point of view.

There are many useful banking problems investigated in the book, and each chapter is followed by a bibliography upon which the material is based. The author does not appear, however, to have been very happy in his choice of English works, and the banking books to which he has had access cannot be regarded in any sense as standard works.

WILLIAM F. SPALDING

La Banque Nationale de Belgique. Les Théories et les Faits. By ERNEST VAN ELEWYCK. (Brussels: Librairie Falk fils. 1913. Pp. vii + 380 + 412. Fr. 15.)

IN so old a trade as Banking, where the human interests in play are as steady in direction as the trade winds, there is an especially good opportunity for the pure theorist. Elsewhere theory must stop half-way and take as its units the ideas of the market place. If it is pressed further and these ideas are broken up into their constituents, its answers must be given in terms which common sense and experience cannot evaluate. But in Banking the simplicity and suggestiveness of these more elementary ideas make them worth the stating, even apart from the consideration that their clear expression removes Banking from the isolation in which its outward forms tend to place it, and fits the work of the banks into the general system of production.

It is not a complaint directed especially against M. Van Elewyck to regret that he does not take this opportunity of filling

a preliminary chapter in this way; indeed, he is perhaps to some extent precluded by the terms of reference which he has laid down for himself: "J'ai pensé qu'à côté de la voix socialiste qui accuse la Banque Nationale d'être une création capitaliste, plus soucieuse d'intérêts privés que de l'intérêt public, et qui proclame l'impérieuse nécessité d'une banque d'État s'inspirant de l'évangile mutuelliste, il était utile de faire entendre une voix libérale, condamnant les excès de l'intervention parlementaire, si souvent incompétente et presque toujours maladroite. . . .

"Puisse-je avoir fourni au libéralisme économique autant d'arguments que l'école socialiste belge en a fourni, depuis une douzaine d'années, à nos journalistes et à nos parlementaires! C'est le but principal de ce livre."

It is, however, so easy to be content with the financial expression of events, and so very difficult to see their true relation to the social facts which underlie them, that one still regrets that an author evidently so well qualified should not have given us more of this part of his experience. When, for example, one hears that the effect of an event is that the bank rate rises 1 per cent., the author doubtless knows the rest by instinct, but the uninformed reader wants to know what this sign in the sky portends. Do the more mobile exports tend to move; if so, what are they? Are commercial and industrial operations contracted; if so which, and to what extent? And so on. Again, few people would be in a much better position than the "Président de la chambre de commerce de Bruxelles" to trace the influence of the banks upon the development of business capacity. The efficiency of the factory is increased in a real and important way by the work of the railway, which enables its separate parts to be produced at the most efficient sources; is the effect upon the efficiency of the business undertaking an important one when the transport work of the banks and the stock exchange organisation enables its constituents, capital and business ability, to be produced separately at their most suitable sources?

It is, however, hardly fair to expect M. Van Elewyck to have developed issues which are not strictly relevant to his purpose; and, indeed, his method and scope have great advantages of their own.

Quite a considerable portion of these two volumes is made up of well-chosen quotations from the work of economists whose names should evidently not be so unfamiliar as they are, and from the speeches of politicians of every shade whose utterances have a special interest not only in showing how the political mind

approaches these questions, but also in marking the contrast between the commercial interest which dominates the administration of the Bank of England and the many kinds of influences which affect the policy of the Bank of Belgium.

In this way, by quotation and counter quotation, rounded off with a curt and dispassionate expression of his own views, M. Van Elewyck covers a very wide field in history and theory; the origins and growth of the Banque Nationale; the political influence of the State and the detailed administrative policy in each department of the bank. The chapters on L'Escompte, L'Encaisse et le Portefeuille étranger, and L'Émission, will probably be of the greatest interest to most economists, but the excellent analytical table of contents enables one to pick and choose with great ease.

There is, I think, nothing of importance in this work which economists would wish to dispute; one leaves it with a comfortable sense that orthodox economic theory has been more firmly established by the testimony of a man of business. It is not M. Van Elewyck's purpose to enrich economic theory, and he does not do so, but he has his "pocket full of sixpences," and the occasional gleam of a coin does much to relieve the subject of a natural dullness, from which neatness of exposition cannot entirely save it. It is a sound, well conceived, clearly written treatise, in which the author's conclusion in favour of greater freedom does not haunt the pages as an obsession, but arises spontaneously from each chapter of the evidence. To economists it gives facts of considerable interest, copious statistics, and a clear insight into banking administration of a kind unfamiliar in England. To "libéralisme économique" it can be nothing less than an arsenal.

F. LAVINGTON

Commercial Paper for Merchants, Bankers, and Investors. By Messrs. BABSON and MAY. (Massachusetts: Babson's Statistical Organisations. London: Effingham Wilson. 1913. Pp. 246. 8*s*. 6*d*.)

THE primary object of this work, specified in the preface, is to assist the officials of the twenty thousand banks of the United States of America in the task of selecting the best commercial paper. Only a portion of the contents deals specifically with this subject; the greater part of the volume is occupied with historical and other details connected with banking.

The advice given as to the selection of such paper is sound,

and suited to the local conditions which are likely to confront those charged with the responsibility in the United States of America of holding it as a security; though no written instructions however, wise and clear though they may be, can take the place of common sense and a practical working acquaintance with commercial banking.

The book has a wider interest than the preface suggests, for the collaborators have appealed to a much larger circle of readers, to all appearance, quite unconsciously.

In the course of their attempt to dry-nurse the budding banker, they have laid bare one of the deep-seated causes, which, on several occasions, have rendered the United States of America the theatre of financial crises, from which the banking centres of other great countries have been, fortunately, almost free—except in so far as they have suffered secondarily as a consequence of American imprudence. The disease, if one may term it so, may be diagnosed as the custom of putting commercial paper to a use severely banned in other banking communities. Commercial paper in Europe, certainly that which is not secured by collateral, represents goods actually sold, for which it is not convenient for the purchaser to pay until a reasonable time has elapsed to allow for transit and delivery, and for the whole or partial realisation of the goods. The writers of this volume divulge incidentally that a large proportion of commercial bills in America are created to cover the period within which a *possible* sale may be effected. In other words, banks afford facilities to the manufacturer or merchant to embark upon speculative business, by discounting such paper, and providing him with the wherewithal to repeat the operation. If, in England, Messrs. Huntley and Palmer draw a bill upon the Army and Navy Stores, the bank that discounts the bill knows perfectly well that the biscuits, the value of which the bill represents, have been actually sold; but the writers suggest that in the United States it lies within the power of any manufacturer in good repute to create bills and obtain funds from his bankers against them on the assumption that his goods will have found a purchaser before the bills fall due.

It needs no great flight of imagination to picture the inevitable result that must ensue when over-supplied markets, or disastrous harvests, check, for a while, the national prosperity. The banks find that they have exhausted their resources in furthering the optimistic plans of their clients, and in the frantic scramble to obtain currency, panic and its attendant evils have full sway. Losses have to be cut and goods sacrificed, with the result that

the manufacturer is crippled and his fall involves a loss upon his bank, which should never have assumed anything in the nature of a partnership with him in his trading risks.

The authors do not appear to attach sufficient importance to the personal equation in commercial bill transactions, for they throw out a suggestion that specially unsecured risks could be met by a system of insurance. The present writer, during his thirty years' experience in the City of London, has known men whose means have been in extreme inverse ratio to their characters for probity, and yet whose written engagements were preferred to those of incomparably richer men. No insurance company can possibly discriminate on matters so delicate, but a bank manager of judgment and experience can discern such a risk to a nicety. In the old days of private banking in the North of England, many a now prosperous and flourishing business has been brought into being and fostered by the banker's individual and personal knowledge of the character of the borrower.

This volume is peculiarly topical, in view of the United States Government's desire to reform currency arrangements in America. It is possible that banks may be federated and empowered to inflate the currency in time of pressure, by certain expedients involving the use of selected commercial paper as part-security for creating additional currency notes. Artificial expansion of currency bristles with danger, and the selection of commercial paper for such a purpose becomes a consideration of the first magnitude.

In an educational work, such as this volume is intended to be, the careless punctuation, frequent errors in spelling, and sometimes irritating lack of lucidity, are blemishes, the more noticeable, because the printing, paper and binding are excellent. Moreover, Sir Edward H. Holden, when quoted as an authority, should have his Christian name inserted correctly, and a great institution possessing a world-wide reputation, such as the Deutsche Bank, is entitled to have its name spelt with accuracy.

Evidently both pains and care have been taken in the compilation and presentation of facts, so as to form a concise book of reference in regard to the banking practices of the chief European nations, as compared with those of the United States. The frank admission of defects and disadvantages in those of the latter country gives to the work an impartial character which adds to its educational value to officials connected with local banks.

BENJAMIN WHITE

Copartnership in Industry. By C. R. FAY, M.A. (The Cambridge Manuals of Science and Literature. Cambridge: University Press. 1913. 1s. net.)

"THE habitual code of sentiment which prevailed between employers and workmen in the times when the former were regarded by both law and usage as the governing class is now greatly relaxed, and cannot be revived. A substitute has now to be found for it, arising from the feelings of equity and enlightened self-interest and mutual forbearance, which should exist between contracting parties who can best promote their several chances of advantage by aiding and accommodating each other." Mr. Fay quotes these words on the first page of his book, and they well represent the spirit in which he treats the subject. There is, as he says, "a boom in the theory of" copartnership to-day: it "is very much in the air," and this book is one of the signs. It is very brief, containing little over 30,000 words, and for a little book it probably attempts too much, touching as it does on cognate movements such as consumers' co-operation, agricultural co-operation, and copartnership in housing—matters difficult to omit altogether and equally difficult to deal with, in addition to copartnership proper, in so small a space.

I have spoken of the spirit in which Mr. Fay treats the subject. When so many are talking of copartnership it is naturally treated in many spirits. Syndicalists are writing of a temporary copartnership which they desire, between a trade union monopolising the labour in a given trade, and an association of employers monopolising the capital and the commercial side thereof, such temporary copartnership leading the State shortly to step in and oust the capitalist element. Others talk of copartnership, again, as if it were merely our old friend profit-sharing, leaving the capitalist system practically unchanged, save for the addition of industrial peace, and an improvement in the workers' earnings. Mr. Fay seems to see further than this; yet he does not put forward as clearly as ardent advocates would desire the ideal of copartnership as a peaceful, but very far-reaching, industrial and social transformation. They have never, indeed, preached it as a panacea, but they do claim that in most forms of employment where goods are produced or distributed, whether that employment be under the State or municipality or some great company, the worker should be given, in addition to standard wages, some direct interest in the profit of his work,

some direct voice in its control, and, where circumstances allow, the right to invest in the capital with which it is carried on. Thus they hope to see industry gradually and peacefully transformed from a capitalistic to a co-operative form.

The Times once described copartnership as an improvement on profit-sharing: that probably is the view most likely to commend it to business men, and it fairly represents the general impression of the movement conveyed by Mr. Fay's book. The improvement carries us well beyond profit-sharing itself: it consists in capitalising the bonus, or profit shared with the workmen. This is the characteristic difference between the great majority of the earlier English schemes where the profit was paid to the worker in cash, and the later schemes where the tendency is to accumulate his bonus in the capital of the business, thus justifying his title of copartner. Put this way the distinction seems clear and simple, but as Mr. Fay well points out, you can have degrees of copartnership: it "may be of a simple or advanced kind." Simple "when the sharing of profit is associated with their employment in some permanent form, in a sickness or pension or savings fund, or in a regulated plan of investment in the firm's capital"; advanced, "when the position of the workers in the business is so deeply rooted that the abandonment of copartnership would necessitate a perceptible change in the composition of the directorate or a serious change in the composition of the capital. Between the two kinds of copartnership there is no hard and fast line." In fact, there is no hard and fast line between profit-sharing in its simplest form (which amounts to very little more than a gratuity), and, at the other extreme, a complete industrial democracy. Much fruitful, but necessarily inconclusive, discussion has taken place as to where exactly the line should be drawn, how much interest in the capital, and what share of the rights of shareholders, belonging to the workers employed, should be considered the minimum, and qualify a business to be called copartnership. Mr. Fay's long acquaintance with, and thorough knowledge of, the subject are well known, and in his limited space he manages to describe many of the most typical instances of copartnership past and present, whether copartnership between employer and employed, or copartnership among a body of workmen carrying on their industry co-operatively without any employer. The celebrated examples of Messrs. Briggs, in England, and of Godin and Leclaire, in France, are followed by the more recent instances of the English gasworks, of Messrs. Lever Bros.' Copartnership

Trust, and by a number of others, in this and other countries, less known but not less instructive. In so large a mass of information it is impossible that there should be no slip, and Mr. Fay has been misled by the French authority he quotes into thinking that profit-sharing still exists on the Danish railways.

Besides a valuable statement of facts, we have in this book not a little of sound comment upon them. In particular, without having space to treat fully the relations of copartnership and trade unionism, the author takes an early opportunity of dispelling the notion that they are incompatible and that copartnership is advocated as a substitute for trade unions. "Their value," he says, "is so great as to make the substitution of copartnership for trade unionism a thing neither to be expected nor desired. In the trades where unionism is established, copartnership must accommodate itself to the fact, and while leaving to the unions the maintenance of the general minimum, concentrate on the more equitable and harmonious distribution of the surplus above the minimum." He sees, too, and points out that the things which make copartnership a growing necessity are not confined to capitalistic enterprises. "As surely as municipal trading and large-scale production by the co-operative stores are destined to increase, so surely will they find the problem of capital and labour fastening itself on them with its old dilemma."

The book is remarkably free from dogmatism, from any narrow view of orthodoxy in economic reform, and consequently from hostility to other theories of reform dealing with the same problems from other sides. "Even at the end of our enquiry," he says, "we are unable to state categorically the things which constitute copartnership. For it is not so much a body of things as a body with a spirit in it." This, no doubt, is true; but we have to remember that science has yet to find proof, that a given spirit can exist upon this planet except with an appropriate body. Experience shows that with the best intentions copartnership, if it is to succeed and endure, needs an appropriate framework, now beginning to be pretty clearly understood. The worker, over and above his standard wages and conditions, must have a share in the profit he helps to produce; he must become a shareholder in the capital; and, if copartnership is to be considered full-grown, he must acquire the ordinary rights of a shareholder.

ANEURIN WILLIAMS

The German Cotton Industry. By R. M. R. DEHN. Economic Series, No. xiv. Gartside Reports on Industry and Commerce, No. 10. (Manchester: University Press. 1913. Pp. 104. Price 2*s.* net.)

MR. DEHN was a Gartside Scholar of Manchester University, and, in accordance with the conditions of the scholarship, he spent a year in Germany in investigating the cotton industry there and in collecting material for the present report. The result of his labours is a clear and succinct account of the German cotton industry which will be found of considerable value by all interested in that industry in this country.

A brief historical introduction shows that the use of cotton in Germany dates back to the fourteenth century, and that the industry was twice almost destroyed, first by the Thirty Years' War, and later by the Napoleonic domination. The industry spread to almost every part of Germany where the textile trades already had a footing, for no one district had, like Lancashire in England, such climatic advantages as to give it a clear superiority over the others. The result is that "the industry is made up of a large number of small industries which have originated at different times and under widely different circumstances. Many of them, founded at a time when the play of economic forces was hemmed in by political divisions which have since ceased to exist, find themselves situated now so unfavourably that they must needs struggle hard to survive. Others have been able to choose the most favourable ground with full knowledge of the conditions under which they would have to work. These conditions have not prevailed long enough for each district to discover and confine itself to the work for which it is best adapted. There is much unprofitable competition, and this is not confined to the German home trade." The number of spindles more than doubled between 1887 and 1909, the number in the latter year being 10,789,239, mostly employed in spinning low and medium counts; there were also 260,323 looms in 1909. Westphalia is the most rapidly advancing district, thanks to the advantages of cheap coal and a more humid atmosphere.

Generally speaking, the German cotton manufacturer is hampered by distance from his fuel supply, and his cotton market, though in Bavaria and Wurtemberg water-power takes the place of coal. The cost of a new spinning mill works out at from 40 to 70 marks per spindle, and of a weaving shed for plain looms at from 800 to 1,200 marks per loom. These costs are much

higher than in England, but they are partly due to the German climate, which makes much stronger structures necessary. Electric driving "has made far greater strides in Germany than with us. The cause of this is partly the higher cost of fuel and the proportionately greater importance of power-economies, but no doubt the high degree of development of the continental electrical industries is to a great degree responsible. In England the controversy still rages whether electrical driving has any advantages over the old system or not. In Germany discussion centres rather round the question whether it is the group drive or the individual drive which is to be preferred." The machinery is mainly English. The functions of manufacture and distribution are combined to a far greater extent than in England, and consequently each mill has usually a commercial director as well as a technical manager. The operatives do not make much use of evening classes. "Moreover, since the factory worker tends to be less expert, the wages he can command in the factory are usually not very much higher than those he can command in ordinary manual labour out-of-doors; and since, in the country districts at least, the majority of the operatives are drawn from the agricultural population, there is always a good deal of changing over from the factory to the fields and *vice versâ*. . . . Similarly, in the towns there is a great deal of changing over from one class of textiles to another." The stability of the operatives is less, their class-consciousness is less, their sense of craftmanship is less, and their efficiency is less than in England. "It may be taken that as a general rule 'good middling' is used in Germany to arrive at results which are attained with 'middling American' in England."

The commercial organisation is much behind that of England. There is no futures market at Bremen, which port is the principal cotton market for Central Europe. The dealers at Bremen have their agents in the spinning centres who quote list prices to the spinners and telegraph or telephone orders to their principals. These orders have to be sent before the opening at New York can have become known, so that the dealers can cover in Liverpool. There is no cotton exchange in Bremen, and brokers are an unimportant class. Spinners and manufacturers usually sell direct to their customers, and though there are exchanges in Stuttgart, Chemnitz, and Mulhausen, the bulk of the business is done in the office or by telephone.

Local rivalries, political and religious divisions, and the economic divergence of interests between spinners and weavers,

impair the efficiency of the employers' organisation in everything except labour matters. Employers frequently maintain their own labour exchanges and employ only operatives provided with a "ticket," a method which affords abundant opportunities for black-listing. In 1909 only about 150,000 operatives out of, approximately, a million were organised, and of these 105,000 were in the Socialist union and 35,000 in the Catholic. "In most cases the employers merely lay down the terms which the other side may accept or refuse. Where, however, they have consented to meet and bargain with the representatives of the unions they have usually had little cause for complaint." Although wages have risen from 10 to 15 per cent. in the last decade, they are much below English rates, and fines and premium-systems cause a good deal of discontent. "Taking everything into consideration, the standard of life of the German cotton operative compares unfavourably with that of the Lancashire cotton operative. Meat is seen comparatively rarely on the table and is bought in very small quantities at a time, as prices are high." Workmen are housed mainly in tenement dwellings. "The most usual dwelling consists of a bedroom, a living-room, and a kitchen," rented at from three to six marks per week; if there is an attic it is sub-let to a lodger. Much housing has been done by employers, sometimes in tenement-barracks, occasionally in model villages. Where mills are isolated the employer knows that he alone will profit by the increased efficiency of his workers, and much "welfare work" is undertaken. This, as Mr. Dehn points out, tends to keep wages low. Some interesting figures are given as to wages, but the year to which they refer is not stated. The Board of Trade enquiry into the cost of living in Germany and the German enquiry of 1907 into the output of the cotton industry both contain interesting figures, but neither appears to have been utilised.

HENRY W. MACROSTY

Das Land der Monopole: Amerika oder Deutschland? By J. SINGER. (Berlin: Franz Siemenroth. 1913. Pp. xix + 365. Price M. 8.50.)

THIS book consists of three parts. The first gives an account of the leading combinations in the United States, most space being devoted to the United States Steel Corporation. The second part deals with the principal German kartells, three-quarters of the section being occupied with the coal, iron, and steel syndicates.

The third part compares monopolist tendencies in the two countries. The descriptions of the various organisations are based on official reports and bring our information well up to date. On the whole they appear to be satisfactory and fair in the presentment of facts. The author considers that the development of "mixed" works on a vertical organisation is leading to the development of "trusts" within the Steel Syndicate of Germany, and considers it an open question whether, but for the renewal of the Coal Syndicate and the formation of the Steel Syndicate, the "vertrustung" of the iron industry might not have gone further. It certainly will be very interesting to watch the evolution of those great self-contained works in Westphalia and Lorraine, and to see how far they will be compatible with the continued existence of the kartells. One would expect the emergence of large independent units as in the British industry, which might or might not co-operate afterwards either in formal or informal combinations. The particulars given by Herr Singer as to the Gelsenkirchner Bergwerk and other large concerns will be found very interesting.

The author is very decided in his views on kartells and trusts. "While in America monopolist tendencies are remorselessly persecuted in a manner and by means which one cannot suppose to have brought special advantages to the community, Germany proceeds always more and more on the road to become the land of monopoly." He is very severe on President Wilson and the Democratic Party for their supposed plans to dissolve the trusts and restore free competition, and considers that a reaction from those views will ultimately lead to the victory of Mr. Roosevelt with his policy of toleration of the trusts so far as they are not monopolist. On the apparent antithesis that we must have either free competition or socialism, he observes that it is noteworthy that in America, where till a little while ago the view prevailed that that was the best Government which meddled least, the cry for nationalisation grows ever stronger. He does not support, however, Mr. Gary's proposal for State-controlled prices, and adds: "The mechanism of price-fixing requires some reform in cases where free competition is no longer efficient because too great a part of the production is under monopolist control. In place of a legal fixing of prices, which would give them the character of a tribute, prices should be regulated in such cases by common agreements between producers and consumers who work up monopolised material, both sections being organised for this purpose. Perhaps such an establishment of prices might

take place with the co-operation of a non-partisan board, or possibly a Government department. Where consumption is much divided, and especially where monopolised goods are sold to the public at large, prices should be controlled by a body of this description." This concession on the part of so whole-hearted a defender of American industry is of no slight importance.

The whole of the third part of Herr Singer's book is well worth reading, despite not a few repetitions. He considers it "ridiculous" to speak of the necessity of tariff-protection for the German steel industry, but he is not favourably disposed to reduction of the American tariff on the ground that it would make American industry much more dependent than heretofore on the world market. His opinions of the German captains of industry are not flattering; their most respectable endeavour is to get into the old ruling class of the military and feudal aristocracy, and to use their joint political power in defence of their own interests. He concludes that the aim of a modern democracy should be "to increase as far as possible the share of labour in the national production, and further to give an ever-growing number of the population a share in the produce of capital as well as in the produce of their own labour." Altogether the book will repay reading, even if the vigour of the language evokes as much opposition as approval.

HENRY W. MACROSTY

Ergebnisse der bisherigen Versuche kommunaler Fleischversorgung in den grösseren deutschen Städten. By PROFESSOR DR. SILBERGLEIT. (Berlin: Puttkammer and Mühlbrecht. 1913. Pp. 43.)

THIS interesting little pamphlet is the work of the Director of the Statistical Office of Berlin. It is an investigation into the results of attempts made from August, 1912, to April, 1913, by a number of the larger German cities to provide their own meat supply. The author shows by means of some useful statistical tables printed at the end of the pamphlet that the price of meat of all kinds has been rising, though with numerous fluctuations, from early in the nineteenth century down to the present date. But since 1900 the rise has been continuous and of unprecedented severity.

There was an average rise of over 40 per cent. in the price of the four chief kinds of meat between 1900 and 1912, which is a yearly rise of 3·3 per cent.; but by far the greatest individual rise

was in the last year of this period, when the rise in price over the preceding year, 1911, was 7·2 per cent. Professor Silbergleit estimates that the German people paid 226,000,000 marks more for the meat they consumed in 1912 than they had paid in the previous year. The special cause of this sudden leap upwards in 1912 was the drought of 1911, and a serious outbreak of cattle epidemics which ravaged a great part of Germany. The meat famine—Fleischnot, as it was commonly called—was suddenly intensified, and considerable distress was caused to a large portion of the poorer classes of the population.

A formidable agitation arose all over the country, but especially in the big towns, in favour of immediate measures of relief. The most certain and the simplest remedy was, of course, to lower the duties on all meat imported into Germany. But the influence of the Agrarian party is still so strong that this plan, though vigorously supported by the Social Democrats and the rapidly growing number of opponents of Agrarian protection, had to be dismissed as impracticable. The measure which was actually adopted was characteristically German.

In the autumn of 1912 a law was passed by the Reichstag granting reductions of duty on imported meat on condition that the meat should only be bought by a municipality for its own account and should be sold without profit, either directly or through ordinary sellers of meat, at prices fixed by the municipal authority itself.

Now the main market on which large supplies of meat were then available was the Argentine, and Section 12 of the Meat Inspection Law forbade the importation of frozen carcases unless they contained a large portion of the entrails of the animal. This provision made it impossible for meat to be imported from the Argentine and Australia, as it could not be properly preserved in that condition. Although great endeavours were made to secure the repeal of this Section they proved quite unavailing, with the result that the only markets from which really large supplies of meat could be obtained were excluded from the operation of the measure, the scope of which was accordingly reduced very considerably. Nevertheless, the German cities at once started to avail themselves of the provisions of the new Act. Out of sixty-two cities of over 75,000 inhabitants, all except two took in hand the municipal provision of meat from foreign sources. Both live cattle and slaughtered meat were imported, the former being only allowed to be drawn from Holland. With the notable exception of Berlin, which brought all its great quantity of meat from Russia,

the majority of the cities imported their meat from Holland. In all, from autumn, 1912, to March, 1913, 9,901 head of cattle and 13,862,901 kilogrammes of meat were imported by the various German cities.

When we come to the most interesting part of the whole inquiry, namely, the effect on meat prices in the different cities, Professor Silbergleit gives us no very definite information. He states that the majority of the cities are of opinion that the extra supply has tended slightly to lower prices, or at least to prevent them from rising as high as they would otherwise have risen. On the other hand, many cities deny altogether that there has been any downward influence on meat prices, though it would appear that in these cases the amount imported has been so small as to form an insignificant proportion of the total quantity consumed. The value of the pamphlet would have been greater if more space had been devoted to the question of price, and if the results had been discussed in some detail in the case of one or two of the cities.

At the beginning of April, 1913, the importation of foreign meat was only continued in twenty-one out of the original sixty cities, and of these several were then on the point of discontinuing it. The main cause of this appears to have been the rise in price of meat in Holland, which no longer made it worth while bringing it into Germany. Also, as the hot weather approached, the lack of cold storage on German railways made the carriage of meat for long distances less feasible.

Several cities have planned special measures for the future, such as entering into long-period contracts with agricultural co-operative societies for the purchase of pigs, or the erection of municipal establishments for the breeding and fattening of pigs.

Although the writer commends very heartily the manner in which the German cities have fulfilled the novel and difficult duties laid on them by the Reichstag, he is very rightly of opinion that other and far more appropriate measures might have been taken to remedy the deficiency in the meat supply.

He quotes with approval the conclusion of the German Municipal Diet (Städtetag): "That it cannot be regarded as the function of German municipal authorities to interfere permanently with the course of food prices and to compensate by means of communal measures for a faulty commercial policy."

The whole story is an excellent comment on the breakdown of Germany's attempt to produce all her meat supply within her own borders; perhaps it has contributed more than anything else

in recent years to strengthen the Social Democratic Party in its struggle against the Agrarian and Clerical predominance in the Reichstag.

C. W. GUILLEBAUD

Railroad Finance. By F. A. CLEVELAND, Ph.D., LL.D., and P. W. POWELL, M.A. (New York: Appleton. 1913. Pp. 463. Price 10s. 6d. net.)

IN the preface Mr. Cleveland writes that the purpose of this volume is to describe the methods of financing railroads in the United States. The book seems to have outrun the purpose. There are few aspects of railway finance which are not touched on. Financial aspects of operation forms the heading of one chapter; whilst another is largely devoted to financial considerations in maintenance. In fact, the book might be described as a general review of railroad finance, were it not for the absence of an adequate consideration of the effect of Wall Street manipulation of railway securities.

It is impossible to follow the authors through all the changes in railway financial methods in the United States. They make it quite clear, however, that common honesty has not been a strong feature. At the same time, they make out a case in several instances for adopting the view that inadequate accounts and statistics were the real causes of many failures, which have been commonly attributed to fraud. At the present time such a claim would be impossible. With the standard forms of accounts and statistics insisted on by the Interstate Commerce Commission, ignorance of the position of a railway property could not be pleaded by those in control unless there had been frauds in the accounts' preparation.

The difficulty of adequate State control of railway finances, so long as the control is divided between the States and the Federal Government, is clearly brought out. This is a difficulty which crops up at all stages in the relations of the railways with the United States Government. There are signs, however, that the difficulty is likely to be overcome in the near future. The business sense of the American people is too wise to allow railway enterprise to be hampered much longer by this division of authority. Railway men long ago realised that Federal control was the only practical form of control, and recent decisions on rate questions have made the truth of this so clear that it is impossible to believe that a way will not be found out of the impasse.

One of the most interesting parts of the book is devoted to the question of depreciation and depreciation funds. It is questionable whether there are a dozen railways in the world which know exactly how they stand in this matter. In this country our railways work on no fixed principle. One railway will build nearly all new locomotives out of revenue; another will relay its road with heavier rails entirely out of revenue. The sums charged to revenue account when station buildings are renewed on a more generous scale than before will be a variable depending on the state of the company's finances at the moment and the practice of the individual line. In India on the Government railways fixed percentages are prescribed for depreciation which in some cases are more than adequate, and in others wholly inadequate, to meet the depreciation which actually takes place. In this book it is urged that rule of thumb and haphazard methods ought to give way to scientific calculation of depreciation. The claim seems so obvious that one is amazed that in the twentieth century it should meet with any opposition. The authors are so much impressed with the defects in this matter of the United States and with the better statutes of Great Britain that they do bare justice to the accounts of American railways, and certainly rate those of British railways too highly.

In the matter of editing the book leaves something to be desired. For instance, on p. 12 a table giving relative values of wheat and corn after carriage over varying distances by railroad and ordinary road is given. The table shows that the values are per ton, but it is only from the succeeding paragraph that the reader learns that the values are quoted in "dollars." On p. 47 examples are quoted of shareholders being allowed to take up new capital at par as instances of "privileged subscriptions." The current market prices of the stocks are not given, and Mr. Cleveland leaves the reader to infer that such prices were above par.

It would be an omission to conclude without a reference to the bibliography given in chapter xviii. This occupies no less than 77 pages, and will be invaluable to any future student of the subject.

W. TETLEY STEPHENSON

The San Francisco Relief Survey. By CHARLES O'CONNOR, FRANCIS H. MCLEAN, HELEN SWETT ARTIEDA, JAMES MARVIN MOTLEY, JESSICA PEIXOTTO and MARY ROBERTS COOLIDGE. (New York: Survey Association Inc. 1913. Pp. xxv+483. Price $3.50.)

To the old world the earthquake of San Francisco seemed one of those dramatic incidents which it is accustomed to associate

with the United States of America—Nature's destructive forces working on her grandest scale, and the apparently almost instantaneous recuperation of a people of marvellous energy and resource. The *San Francisco Relief Survey* tells this thrilling tale in very sober fashion; the writers seem anxious to make no appeal to the imagination. Six competent investigators, three of whom were in the forefront of the relief operations, compiled the volume, the main object of which is to serve as a guide to social workers in any case of similar emergency. The six separate studies when completed proved too voluminous for publication, and the work actually brought out is a condensation of the original material. By the process of condensation the book has suffered in readableness, and the joint authorship is responsible for occasional repetitions. The book remains, nevertheless, a record of exceptional interest, and a mine of information for the social student.

On Wednesday, April 18th, 1906, at 5.12 a.m., the city experienced an earthquake shock of about one minute's duration. In an incredibly short time, 28,188 buildings had been destroyed by fire; 200,000 out of a total population of 450,000 were homeless; water, light, and drainage systems were annihilated. The loss of real and personal property has been estimated at 500,000,000 dollars—the loss of income from unemployment and cessation of business cannot be estimated at all. The entire population had been brought down to the bread line.

At 6.45 a.m. the Mayor took command, and the federal troops which had been summoned were placed at his disposal. His first order was to shoot, not arrest, looters; the second, to close all places that sold liquor. A Citizen Committee was nominated, and various sub-committees, most of which proved useless, were formed. The main work of relief was entrusted to the Finance Committee, which co-operated with the American Red Cross and the army.

The immediate needs of the population were food and shelter, and with the problem of providing these the relief organisation appears to have dealt with remarkable success. There was an abundance of supplies and no excessive hardship, but considerable confusion was introduced by the intervention of unauthorised, self-constituted committees, which took it upon themselves to impress goods and vehicles, and to distribute supplies. The distribution of clothes was not quite so urgent, and apparently presented no difficulties. In the matter of shelter the interference of unofficial committees, who built barracks in haste and repented at leisure, again confused the issues and led to overlapping. Twenty-

one official camps, first under military control, and after August 1st, 1906, under the "Department of Camps and Warehouses," gave shelter to numbers that ranged from a maximum of 17,592 in June, 1907, to 948 in June, 1908. Tents were supplied free of charge for the first seven months; later, wooden cottages were put up at a nominal rental; and finally, the occupiers were allowed, under definite conditions, to remove these cottages, of which they then became the owners.

When the emergencies of the moment had been dealt with, the authorities were faced with the most difficult task of all—that of rehabilitation. Under the direction of the Rehabilitation Committee the associated charities organised, in each of the seven civil sections of the city, a committee of persons who had some knowledge of the district and had already been engaged in philanthropic work there. These committees applied themselves to the task of grappling with the requests for help that poured in upon them, investigating the stories presented, the schemes for business or housing proposed by the applicants, and judging on the merits of the case. Between July 7th and August 1st, 1906, the Central Committee passed 3,000 applications, while 9,000 more were awaiting action. In October a radical change of method was made: the section offices were closed, and all the work was taken over by a Central Committee, with eight sub-committees to deal with special branches of the work.

In the matter of housing the chief difficulty was that of securing competent contractors and plumbers. The best results were obtained by encouraging men to build, or superintend the building of, their own houses. On the whole the help given was effective, and reached the people who were best fitted to make use of it.

Of the 22,140 grants made by the Rehabilitation Committee, 4,888 were designed to enable the applicants to make a fresh start in business. Of these applicants 894 were re-visited later by the survey workers, to ascertain what success had attended their efforts. It was found that 683 had actually started in the proposed business, and of these 543 were found to be still carrying on the business in 1908. In some cases failure was attributed to the insufficiency of the capital granted. "The Committee," says the writer of this section, "seldom erred on the side of generosity." In other cases the help came too late; in others, again, there was insufficient supervision.

The compilers of the survey found their work much increased in difficulty, and their conclusions diminished in value, by the

insufficiency of the records kept. Hence their most emphatic recommendations to relief workers at all stages is: more record of details, more tabulation, and, first and last, more careful registration. The lessons to be learnt from San Francisco stand out in the clearest terms. There must, in a time of disaster, be only *one* committee or corporation, and no division of responsibility for distribution. Nor should the donors of money or supplies impose restrictions—only those on the spot can judge the real need. The San Franciscan authorities were embarrassed with vast stores of potatoes, condensed milk, and flour, which they could not use and were not allowed to sell. There must be a strict audit of all cash contributions. There should be a bureau of special relief during the rehabilitation period to meet emergencies, as the ordinary machinery is necessarily slow-going. There should be no rigid limit fixed to the size of grants, and all grants should, as far as possible, be followed up by a close supervision of plans and expenditure. Finally, it is suggested that the American Red Cross, with its existing machinery and organisation, should be recognised as the national agency for all disaster funds.

H. REINHERZ

Vorlesungen über Nationalökonomie auf Grundlage des Marginalprinzipes. By PROFESSOR KNUT WICKSELL. (Jena. 1913. Pp 290.)

THIS substantial volume, which has been translated from the Swedish under the author's supervision, constitutes the first half of a work, shortly to be completed, on general economic theory. It is divided into four sections, dealing respectively with (1) population, (2) value, (3) production and distribution, and (4) capital; the discussion of money and credit being left over for the second volume. The work, as its title suggests, finds its root-principles in the writings of Jevons and Walras. In general character it is a critical exposition rather than an independent contribution to learning. The author is familiar with the writings of Marshall, Pareto, and Böhm-Bawerk, as well as with those of the "classical economists." In his chapter on "Population" he suggests, as a problem, to determine under given conditions the *best* number of persons for the welfare of a country, and he maintains that, among civilised nations in general, population is increasing *more* rapidly than is desirable. The somewhat laborious character of the exposition, coupled with the general

familiarity of the ground covered, makes it unlikely that this new text-book will find many English readers—unless, indeed, an English as well as a German translation is produced.

A. C. PIGOU

Das Versicherungswesen. By DR. ALFRED MANES. (Leipzig: Teubner. 1913. Pp. xiv+485.)

THE publication of a second edition of this book is indicative of the degree of attention which of late years has been bestowed in Germany upon the scientific study of insurance. In England there is as yet no literature of the subject; in Germany one is rapidly growing up. And there is the further distinction between the two countries, that whereas the little which has been written here has been written for the most part by members of the insurance profession, who have frequently failed to combine with their intimate knowledge of business methods an economic or historical aptitude, and insurance problems have been wholly neglected by the recognised economists, in Germany much serious work on the subject has been done by students who have no connection with the business of insurance, and the economists have begun to include it within the scope of their study. The change that has taken place in their attitude is well illustrated by a comparison of the earlier with the more recent editions of Roscher's *System der Volkswirthschaft.* In the older editions insurance is dealt with merely as incidental to some particular subject under consideration, whilst in the newer editions there appears for the first time a comprehensive survey of insurance in general.

These German writers have unquestionably done a great service for insurance. To replace the old view of it as a system of routine and commercial procedure they have urged the need for a higher conception—the need to consider its nature and objects; to assign it a place in the social system; to bring it, in other words, into focus with the general body of economic teaching. Dr. Manes has done more perhaps than any other writer. He combines a sure grasp of technical detail with a capacity for scientific treatment, and his position as editor of the journal of the *Verein für Versicherungswissenschaft* ensures familiarity with contemporary development.

This second edition upon casual inspection appears to be simply a reprint of the first. The summary of contents presents a practically unaltered arrangement of headings and sections. To judge thus superficially, however, would be seriously to under-

estimate the merit of the new edition. Since 1905 important things have been happening in the insurance world, particularly in respect to the attitude of Governments. These changes have brought with them, of necessity, changes in the organisation and conduct of the business.[1] Moreover, not only has the use of the better known forms of insurance been steadily increasing, but the principle of insurance has been constantly finding fresh applications, and these extensions and new applications have meant amendment and development of the statistical material in which the book is rich. That Dr. Manes has not shirked his responsibilities in these respects is all the more worthy of praise because, with the exception of Workmen's Compensation Insurance, Insurance Mathematics, and Insurance Law (which are expressly excluded from its scope), the study covers practically the whole ground, and does not confine itself to conditions in Germany only. It is not merely that facts and figures have been brought up to date, however; the new problems that time has produced have been faced and considered. That the bulk of the volume is so little altered is accounted for by the fact that it has been possible to omit sections of material which since the date of the first edition have become easily available elsewhere.

Space may perhaps be taken to mention one of the most interesting of the developments of recent years—and one to which the author gives due attention—namely, the increase in Germany of what may be called insurance instruction. With the movement are bound up in particular three events, all of which took place before the issue of the first edition, but all of which have exercised a great influence since. They are the founding of the Insurance Seminar at Göttingen University in 1895; the rise of the *Handelshochschulen* at the end of the 'nineties; and the formation in Berlin of the *Deutscher Verein für Versicherungswissenschaft* in 1899, to which reference has already been made. The example of Göttingen has been followed within the last few years by several other universities, as well as by the *Handelshochschulen*, and not only are there now recognised courses of lectures dealing with the various sides of the subject—economic, statistical, legal, and mathematical—but examinations are held and diplomas are awarded.

The book presents a rather stodgy appearance hardly attractive to the eye, but possibly that is considered necessary in a series of handbooks of trade and industry. Nor is the manner of treat-

[1] Cf., for example, the new German and Swiss legislation relative to insurance contracts.

ment always in revolt against outward appearances. But it would be ungracious to lay undue stress upon these minor defects. Certainly there is yet to be written a book on the subject which can compare with this work of Dr. Manes.

A. FINGLAND JACK

Theorie und Methoden der Statistik. Ein Lehr-und Lesebuch für Studierende und Praktiker. By AL. KAUFMANN. (Tübingen: J. C. B. MOHR. 1913. Pp. xii + 540. Price 16 marks.)

THIS systematic treatise, by a Russian professor, has been translated into German with some modifications to meet the needs of German students. It is to be welcomed, as making more accessible to other countries knowledge of the lines on which statistical ideas are developing in Russia; it is to be wished that we could also have a translation of Prof. Tchuprow's text-book. The author draws his inspiration from Russian, German, and English writers, and his method in many sections is to collate lengthy quotations from any of the half-dozen authors he favours and adjudge praise or blame; this is interesting enough to the student of statistical thought and informing as to the general trend of opinion, but the result is a more than German prolixity. In this bulky volume only a small part of statistical theory and practice is covered. Within his self-assigned limits the author shows great knowledge, intimate understanding of even the more delicate processes of measurement, and a sound judgment except where mathematical methods are concerned. In his first part, which is consecrated to theory, statistics is limited to mass-observations of human affairs. The foundation of the science is the Law of Great Numbers, which is closely related to the mathematical theory of probability. The treatment of this law is a little irritating, for the author contents himself with unproved mathematical theorems, and is apparently ignorant of Professor Edgeworth's (Germanised as Edgewort) fundamental treatment. As so often happens, one finds rather loose references to the use of a modulus for measuring the stability of numbers, but no consideration of the possible relation of the modulus to a frequency curve which would exhibit the probability of variations of different amounts from the stable position. The author can think clearly and write lucidly, and in the space devoted to the nature of great numbers it would have been possible for him to show in some detail the line of argument which connects mathe-

matical hypotheses with the movements of numbers arising from mass-observations.

Though the subject is based on mathematical theory in the first part, it is all thrown over and the exposition is for the entirely non-mathematical reader in the second; the few formulæ given are explained so slightly as to be nearly useless. By this self-denying ordinance, the author cuts out a great many methods (measurement of precision, probable effect of errors, use of the correlation-coefficient) that ought to be known by the students and practical statisticians for whom he writes. It is a serious misfortune that, at the very time when in England, France, and Norway (to name only three countries) very successful applications of mathematical statistical theorems are made in quite simple ways to practical problems, in such an important book as this they should be relegated to the specialist and their utility underrated, and that eminent German statisticians should be quoted as supporting these views.

The main merit of the treatment is to be found in the careful and systematic discussion of the elementary processes of accumulating and working up official statistics. If there is little that is original, there is still much that is illuminating. The inner significance of processes and the exact connotation of terms are subjected to searching analysis. Everyone who has the patience to read through the latter half of the book will find that he has absorbed a good many useful ideas.

A. L. BOWLEY

The Six Panics, and other Essays. By F. W. HIRST. (London: Methuen and Co. 1913. Pp. vi+271. Price 3s. 6d. net.)

THE six panics which Mr. Hirst describes and discusses are not commercial panics, but war scares. The first three are the panics of 1847–1848, 1851–1853, and 1859–1861, made famous by Cobden's "scathing exposure" of them in his *Three Panics*. Mr. Hirst's fourth panic, the one for which the late Mr. W. T. Stead was largely responsible, took place in 1884, and is now probably the least well-remembered of the six. "It was," as Mr. Hirst says, "not much more than a professional agitation for taxpayers' money which died down as soon as something was forthcoming" (pp. 46, 47); but it is important, he thinks, because "although the results were small in comparison with later performances, the year 1884" marks "the beginning of a most disastrous expansion in naval armaments, in which the provoca-

tive impulse has too often been furnished by Great Britain" (p. 42)—a beginning which led on to what is described as "a most disgraceful chapter in the history of British policy" (p. 58), viz., the "appalling outburst of naval extravagance" of the ten years following 1893.

What the author describes as the "Dreadnought Panic" of 1909 is still comparatively fresh in the public mind, and it is natural that more space should be devoted to this than to the other panics. This chapter contains copious quotations from the speeches in the House of Commons in the debates on the Navy Estimates of March, 1909, and much forcible criticism of the Dreadnought policy, particularly of its development at that time —criticism which, as Mr. Hirst says, has been offered over and over again. It is, however, we think, important that both the facts and the criticism should be placed before the public once more, and we are glad that Mr. Hirst has undertaken the task. An alarm is often remembered long after the fact that it was groundless has been forgotten. It is well, *e.g.*, that we should be reminded that in 1909 Mr. McKenna "admitted it to be possible for Germany to have twenty-one Dreadnoughts on April 1st, 1912"; while Mr. Balfour "believed she might have twenty-five" (p. 79): whereas, as a matter of fact, "when the date arrived Germany had nine!" (p. 79, note).

The sixth is the Airship Panic of the present year.

Mr. Hirst has a good deal to say on the causes of these panics, and we gather that he would probably agree with the Socialist who said that peace would be possible only when it became unprofitable to produce the instruments of war. The object of the book, as its author tells us in his preface, is "not so much to prevent the recurrence of false alarms in the sensational press—for no reasonable man can hope to do that—as to prevent the abominable waste of public money in which a successful panic always ends. It is all-important that the governing classes and the leading statesmen, who are trustees for the nation and for the public funds, should feel ashamed of the hoax which has now been practised upon them so often" (p. v). The modest hope expressed by Mr. Hirst that he may have supplied them with a defensive armour against the arrows of future panic-mongers should be realised if the book receives the attention it deserves.

Certain portions of the book, the author says, have appeared in *The Economist* or elsewhere, but there is nothing to indicate which these portions are, except in the case of the essay on Friedrich List and the German Zollverein, the greater part of

which formed the introduction to Miss Hirst's *Life of List*. We should imagine, however, that the portions previously printed are contained in the eleven essays which form the second half of the book. Most of these are of a rather ephemeral character, and we doubt whether they were all quite worthy of reproduction. They range over a considerable variety of subjects, and do not seem to call for any special comment. There is a vigorous plea for the abolition of the right of capture and prize-money in naval warfare; a striking picture—not at all overdrawn—of the disastrous results of the Balkan War to the country of the victors and its inhabitants; essays on John Bright, English newspapers and their authority, foreign travel, &c. The essays which will be of most interest to readers of THE ECONOMIC JOURNAL are one entitled *Insular Free Trade—Mr. Balfour's Doubts and Anxieties Resolved*, which contains some good criticisms of Mr. Balfour's well-known pamphlet, one on private luxury and public waste, and a very attractive little essay entitled *A Plea for Gardens*. In the provision of gardens of one-eighth to one-quarter of an acre for cottages Mr. Hirst sees "a cure for one of our worst economic and social evils; and it is a cure which will add very greatly to the national wealth. It will not enrich one class at the expense of another; but it will increase the total product and enlarge the national dividend. It will be a source of health and wealth to tens of thousands of poor families, and it will teach the children a most valuable kind of knowledge—the knowledge of gardening, which is the beginning and end of agriculture" (p. 241).

This second half of the book is rather slight, but it is written in a popular style, and the essays are all very readable.

H. SANDERSON FURNISS

Protection Paves the Path of Prosperity: an Exposure of Free Food Folly and Fiction. By THOMAS PENN GASKELL, M.Inst.C.E. (London: King and Son. Pp. xii+147. 1913.)

THE author of this book is a thorough-going Protectionist. Protection is, in his opinion, a better term than Tariff Reform, and he writes of "the disastrous policy of '46" (p. viii). The first six chapters deal in the main with the effect of our Free Trade policy on British agriculture, and with the benefits which he thinks agriculture in France and Germany has derived from Protection. Chapters vii., viii., contain the usual comparisons of the growth of certain British industries with those of France,

Germany, and the United States, and in Chapters ix., x. the author pleads for the ordinary remedies advocated by Tariff Reformers.

The book contains no new facts or arguments, as was rather to be expected at this stage of the controversy. Many of the facts which are brought forward, however, though they would be admitted by most people, do not really help to establish Mr. Gaskell's case, and many of the arguments he uses are not even the best of the old ones. It was hardly worth while to prepare elaborate tables to prove that the supply of home-grown wheat has fallen off since the introduction of Free Trade in 1846, or to show that the acreage under the plough and the numbers engaged in agriculture, as well as their proportion to the population, have declined of recent years. Nor was it necessary to occupy so much space in telling us that some of Cobden's prophecies as to the effect of Free Trade on British agriculture have been falsified.

The author is not quite fair with regard to some of the conclusions he draws from his facts; *e.g.*, he points out that the agricultural population of Germany has declined since 1882, but this is attributed mainly to the increased use of machinery, whereas the falling-off in our own agricultural population he sets down entirely to Free Trade.

Mr. Gaskell does not appear quite to understand some of the most elementary principles of international trade. Here are two specimens of the kind of statement he makes:—

"At the present time the average excess of wheat imports, due to the diminished yield at home, is about 10,000,000 quarters a year, and as the present price of imported wheat is about 35s. a quarter, it may be said that £17,500,000 per annum is being spent abroad instead of being allowed to fructify at home in the shape of wages and profits to our agriculturists" (pp. 17, 18).

"The United Kingdom has in its midst to-day the best markets in the whole world. Ought not the British citizen to have the first claim on his own markets, and ought the foreigner to be allowed the use of them without any payment whatever?" (p. 120).

In Chapter ix. Mr. Asquith is quoted as saying that an import duty on corn, imposed by a country that is obliged to get the bulk of its supply from outside its own shores, will raise the price of the whole supply by at least the amount of the duty. It is no answer to this to quote from the 1909 Blue Book on British and Foreign Trade and Industry to show that the price of wheat

in the United States was no higher than in England, although there was in the United States an import duty of 8s. 7d.

In short, this is a book which will not, we think, do much to help the cause of Protection.

H. SANDERSON FURNISS

Economics of Business. By NORRIS A. BRISCO, Ph.D., F.R.H.S. (New York: Macmillan Company. 1913. Price 6s. 6d. net.)

IT is not a little remarkable that most of the books of a similar description to Dr. Norris A. Brisco's *Economics of Business* have been published in the United States and written by American authors. Accordingly, it seems not unreasonable to suppose that the demand for such literature is greater in the States than in this country. This would be a gloomy reflection to the Britisher, if he failed to take into account the quality, as well as the quantity, of the literature in question. The truth is that while works of this description are unquestionably of interest to those who are already well acquainted with their subjects, they are but a feeble guide to the uninitiated. Nor is this altogether surprising, when Dr. Brisco candidly admits that he considers the most significant of all contributions to this subject to be those that have been made by successful business men recounting their own experiences. This being his view, it is to be assumed that, in the work before us, he has given the greatest weight to utterances of this description, and founded upon them the majority of his statements and his theories. Yet, surely, it must be obvious that very few successful business men are able to diagnose the causes of their success with even approximate accuracy; or, alternatively, that, however willing they may be to secure an advertisement for their personalities, they labour under no overwhelming anxiety to "give away" the causes of their success. The intelligent observer is often able to read between the lines of such utterances, and to gather from them an occasional hint that may prove suggestive; but they can hardly be said to constitute the basis of any reliable text-book. All the same, and in spite of its manifest superficialities, the work before us has at least the redeeming virtue of being eminently readable—a quality which many more weighty volumes can lay no claim to. Accordingly, it may yet justify its existence by demonstrating that it is possible to write on such subjects as economics and business management, and at the same time to be interesting. But the author's obvious lack of acquaintance with any of the more

recently published British works on the same and kindred subjects, combined with the fact that he apparently addresses himself exclusively to American conditions whenever he is at all practical, naturally imposes considerable limitations on the utility of his work in this country. At the same time, it may be stated that a distinct demand is growing up here for a text-book, written in plain non-technical language, on some such lines as the one before us. We can only regret that, owing to the defects to which we have drawn attention, it seems both unlikely and undesirable that Dr. Brisco's *Economics of Business* should be held to meet that demand.

LAWRENCE R. DICKSEE

The Standard Rate in American Trade Unions. By DAVID A. MCCABE, Ph.D. 1912. Pp. 249. (Johns Hopkins University Studies in Historical and Political Science.)

Admission to American Trade Unions. By F. E. WOLFE, Ph.D. 1912. Pp. 181. (Johns Hopkins University Studies in Historical and Political Science.)

The Government of American Trade Unions. By THEODORE W. GLOCKER, Ph.D. 1913. Pp. 237. (Johns Hopkins University Studies in Historical and Political Science.)

THESE detailed studies contain a mass of information with regard to the methods and objects of American trade unions. Dr. Glocker has had the most interesting subject to deal with, and he gives a vivid impression of the problems of trade union government. We recognise many features which are familiar in this country. For instance, in America, as here, there is unending conflict between the experienced officials on the one hand, and on the other the stalwarts who uphold the "down tools policy" and the literal application of extreme democratic principles in every department of trade union administration. The problem also as to whether the executive board of the union shall consist of the permanent officials, or of members working at their trade, in different towns, who act as a check on the officials, or whether, as a third alternative, the "governing branch" plan shall be adopted, has exercised hundreds of American trade union administrators, in much the same way as in this country. But, on the other hand, there are some striking differences between the constitutional development of English and American unions. Decentralisation is much more prevalent in America. (It is, for

instance, noteworthy that the term "local union" is constantly occurring, where, under English conditions, we should speak of a branch). It is difficult to decide from Dr. Glocker's study whether the lack of centralisation is due to the large geographical area over which many American unions extend, or to the fact that trade unionism is really still in a more primitive condition in America than in England. Dr. Glocker himself contrasts the history of the use of the referendum in American and in English trade unionism. In America trade unionists are in the forefront of the widespread movement for the increased application of the referendum to State and municipal politics. The sources of the trade union constitution, and the relations between Canadian and American trade unionism, are among the many other interesting points with which Dr. Glocker deals.

Boys and women are a source of many burning problems in connection with the right of admission to trade unions in America as in England. It is well known that workmen in America pass much more easily from one class of work to another. It is, therefore, only natural to find that where a more or less formal apprenticeship is insisted on by American unions, it is often only required to be of three or four years' duration, as against the five or seven which are to be found in the rules of so many English unions. It is interesting to find that one or two unions, such as the electricians', have developed quite elaborate systems of testing the competency of workmen who apply for admission; while others, such as those of the marine engineers, plumber, and barbers, recognise and support the system of government certificates of efficiency, which are established in these trades. Questions as to the admission of negroes and of alien immigrants are constantly causing controversies in the unions. It appears to be common for local unions to refuse to admit negroes, while the central authorities strive hard to uphold their equal rights. Dr. Wolfe concludes that the monopolistic "closed union" is a rare phenomenon.

The details of problems connected with the form of standard rates, and particularly piece rates, are very largely the outcome of almost inevitable circumstances connected with the nature of various trades. Dr. McCabe does not give us a very clear impression of the extent to which standard rates really are observed in the various trades. It is true that it is exceedingly difficult to do this; but unless we know it the paper decisions and demands of unions may often give a false impression of the true prevailing conditions. The study of the area of the standard rate is perhaps

the most useful part of Dr. McCabe's book. He notes that the area of piece rates tends to be much larger than that of time rates. The statistics relating to the attitude of the unions towards piece and time rates are also particularly valuable, and may be usefully compared with the similar statistics compiled by Mr. and Mrs. Webb.

F. KEELING

Progress and Uniformity in Child-Labor Legislation: a Study in Statistical Measurement. By WILLIAM F. OGBURN, Ph.D. (Columbia University Studies in History, Economics, and Public Law, No. 121. 1912.)

THE development of international labour legislation, and the activity of central governments in every country as "gadflies" stirring local authorities or subordinate legislatures to higher standards of efficiency, render the study of the statistical methods of measuring social progress of directly practical importance. Anyone who has made even the slightest attempt to compare the details of factory legislation in different countries must realise the extraordinary difficulty of forming comparisons of the real effectiveness and not merely of paper requirements. The same problem exists in connection with the administration of the Employment of Children Act in our own country, or in connection with the labour laws of the American States, which constitute such a formidable volume in the editions issued by the American Bureau of Labor. Dr. Ogburn has certainly succeeded in rendering the labour legislation of the United States as a whole more intelligible to the student. His tabular statements make it possible to form some estimate of the rise in the standard of regulation throughout the country; and his methods are worthy of study by anyone who is endeavouring to record the action of a large number of local authorities or different governments in dealing with a given problem.

F. KEELING

The Naval Mutinies of 1797. By CONRAD GILL, M.A. (Manchester University Press. Price 10*s*. 6*d*. 1913.)

APART from its historical value, this book has some special interest for economists in the curious similarity of the 1797 mutinies to modern industrial strikes.

There were numerous causes through which a spirit of rebellion was fostered in the Navy and brought to a head at the close of

the year 1796. But the most important Mr. Gill shows to have been economic. Since the time of the Protectorate, the naval pay-schedule had not been changed. On the other hand, the cost of living had risen in that period by at least one-third. Moreover, the rations of food supplied were of wretched quality, while even from them, such as they were, there was much "leakage," as well as from the medical stores and other issues intended for the comfort of the men. Thus the sailors had a very real grievance; and their resentment against such treatment was aggravated by the fact that two years previously, while they were neglected, the Army pay had been substantially increased; so that they imagined, not without reason, that the officials at the Admiralty were both ignorant and careless of their condition. They resolved, therefore, to take the remedy into their own hands, and the method adopted was to refuse to weigh anchor until the pay of a seaman should be augmented to about a quarter as much again as it then was and their other grievances redressed; finally, the King's pardon was demanded for all concerned.

Of the two mutinies, the first, at Spithead, was quickly successful; the Nore mutiny which followed was protracted and ended in an inglorious surrender. The Spithead mutineers displayed remarkable efficiency throughout. There was, of course, no time or means to form a trade union organisation. But this difficulty was solved in a simple way by taking over the naval organisation as it stood, some of the officers even (who showed surprising wisdom in a difficult position) being retained at their duties, and only those sent on shore who were particularly detested by the crews. Supreme command devolved upon a council of delegates chosen for the whole fleet, and upon special committees for the various units. Obedience to their orders was absolute, and the daily routine continued as usual. Meanwhile, the delegates bargained with the Admiralty. No doubt their contentions gained force from the fact that French and Dutch expeditions were maturing at Brest and the Texel; otherwise they must easily have been starved into submission as were the Nore mutineers in the sequel. But the threat of hostilities and the justice of their demands gave the mutiny the support of public opinion, and Pitt's Government, after some haggling, not unwillingly conceded what was asked. Shortly afterwards dissensions again broke out in the Channel fleet owing to a suspicion, not uncommon in trade unions to-day, of Government good faith. As soon as the new changes were embodied in an Act of Parliament, however, the seamen returned to duty well-satisfied.

The mutiny at the Nore was no more than an imitation of Spithead. But in this case personal ambition drove the leaders on to make more and more preposterous demands, which soon alienated the sympathy not only of the public but of their own supporters as well. By adopting a firm attitude and cutting off supplies the Admiralty succeeded in forcing an unconditional surrender.

The Spithead mutiny was in every way a model strike. Violence was avoided under the strong rule of the delegates, and the latter worked harmoniously because they worked only for their electors' interests. To take their own words from a dignified communication to the Admiralty, "We know when to cease to ask as well as to begin, and we ask nothing but what is moderate and may be granted without detriment to the nation or injury to the service." Clearly the sentence quoted is in the spirit of a trade dispute, not of a treasonable revolt. It remained for Parker at the Nore, by his self-seeking insolence, to drive those of his supporters who were deeply implicated into the arms of a foreign country.

Mr. Gill draws no moral from his account, but it is not impossible that in both mutinies there is a warning for the present day. In the British Navy, no doubt, modern methods of discipline make the fear of a mutiny practically negligible. But in the event of war a big union of colliers and railwaymen might very well have a dangerous measure of power, and use it in the fashion of the 1797 mutineers.

F. M. HARDMAN

NOTES AND MEMORANDA

The Construction of Index Numbers to show Changes in the Price of the Principal Articles of Food for the Working Classes.

This paper deals with some of the more striking difficulties encountered during a recent attempt to obtain a series of retail food index-numbers for London. The Board of Trade, in their *Annual Abstract of Labour Statistics*, give each year index-numbers of the retail price of the principal articles of food in London, but they unfortunately do not indicate the methods which they adopt to overcome the difficulties encountered. In passing, I should like to point out that in spite of the fact that it is expressly stated by the Board that these index-numbers are based upon returns for London only, they are constantly quoted as applying to the whole of the United Kingdom. The Board of Trade have now shown in their Report of the *Cost of Living Enquiry for* 1912 that the increase in retail prices between 1905 and 1912 in the different towns was surprisingly variable; the extreme range being from 7 per cent. in the case of Portsmouth to 20 per cent. in Stockport.

The value of index-numbers depends not only upon the accuracy, but also upon the number, of the returns used in their construction. It is therefore a little disconcerting that year by year the Board have published in their *Abstract of Labour Statistics* the food index-numbers referred to above, without stating the number of firms making returns to them for this purpose. In the Report of their *Cost of Living Enquiry for* 1912, however, it is stated that these figures are based upon a single record, namely, upon the only available continuous series of prices reaching as far back as 1892. I can quite appreciate the difficulty experienced in obtaining many continuous returns of prices reaching as far back as this year, but this is surely no reason why the index-numbers for recent years should also be based upon a

single record. It is only fair to the Board to state that between 1905 and 1912 the general increase in prices, according to these index-numbers, was practically the same as that shown for London by the two "Cost of Living" Enquiries, for which returns from a large number of firms were obtained; but for individual commodities there was in many cases a marked disagreement between the two results, these differences neutralising one another on calculation of the final figure. It is, also, to be regretted that in these "Cost of Living" Reports the Board do not state the number of returns upon which the different figures are based, so that it might be possible to judge of their relative merits.

Index-numbers of retail food prices can be based either upon weekly or monthly records of the prices charged by the retailers for the principal articles of food, or upon the prices paid by the consumers, *i.e.*, upon family budgets. Owing to the great difficulty experienced in obtaining accurate family budgets, and the enormous labour involved in obtaining a sufficient number to give reliable information, the first alternative is most certainly to be preferred.

The next point to be determined is whether the prices charged by firms dealing with working-class and middle-class customers respectively change in the same way; in other words, whether we can use records from both types of firms indiscriminately in determining the change in the cost of living for the working classes. Without much more data than are at present available it is impossible to decide anything definitely on this point; as a result of my own investigation, I came to the conclusion that, although for individual commodities the average change in the prices charged by the two types of firms was not the same from year to year, the general level of retail prices as a whole in the two cases showed similar variations over the particular period studied. Until more definite information is available on this point, it would probably be wiser to treat separately the returns from the two types of firms. Incidentally, it is much easier to obtain returns from middle-class firms than from firms dealing with working-class customers.

It has already been stated that in order to calculate reliable index-numbers for a given commodity, it is necessary to obtain returns from a number of firms. To illustrate this point I have given in the following table index-numbers for bread obtained from five London firms, three dealing with middle-class and two with working-class customers. I have selected these from a number of firms making returns during my recent investigation,

firstly, because they were able to give me the date and extent of every change in price which took place during the period studied; and secondly, because, with the exception of Firm E,[1] their trade extends into practically every district in London. Firm A has over 150 branches, Firm B over 100 branches, while Firms C and D serve customers all over London. I should therefore have supposed that the index-numbers based upon these returns would have agreed very closely; but an inspection of the table shows that this is not the case, even for firms dealing with the same class of customer; to take a single example, for 1904 the figures for Firms A and B are more than 7 per cent. higher than the figure for Firm C. Similar divergences were also found for other

Index Numbers of the Retail Price of Bread in London, 1900–1911.
(*Average* 1900–1911 = 100.)

Year.	Middle Class Firms.			Working Class Firms.	
	Firm A.	Firm B.	Firm C.	Firm D.	Firm E.
1900 ...	94	96	95·5	95	98
1901 ...	91	96	95·5	93	98
1902 ...	94	96	95·5	96	98
1903 ...	98	96	95·5	99	98
1904 ...	103	104	95·5	101	99
1905 ...	103	96	95·5	99	101
1906 ...	100	96	95·5	96	98
1907 ...	103	96	103·0	98	95
1908 ...	104	104	112·0	107	107
1909 ...	109	117	112·0	110	110
1910 ...	104	108	103·0	107	102
1911 ...	100	100	99·5	99	98

commodities, which suggest that the prices charged by different firms for the same commodity do not vary in the same way, and that to obtain reliable results index-numbers must be obtained from as many firms as possible, and the mean taken as the final figure.

In obtaining these final figures the question of weighting the different index-numbers according to the relative importance of the firms in question must be considered, although in practice it is very difficult to determine the particular weight to be given to any individual firm. The Board of Trade in their "Cost of Living" Enquiries, give what they call the predominant price of the different commodities in the various towns. They explain that the predominant price is neither the "minimum" nor the

[1] The trade of firm E is confined to one district of London, but it is so extensive in that district that it fixes the price of bread for the whole neighbourhood,

"average price," but the "price at which most working-class people buy." If the Board had selected either the "minimum" or the "average price" the matter would have been quite clear; but as it is we are naturally anxious to know the statistical method employed in arriving at the predominant price, a subject upon which the Board of Trade give us no information. On the face of it there appears to be room for too much personal equation for this predominant price to be a really satisfactory measure. It may be observed that even if the predominant price could be accurately determined it is possible that it might not lead to really reliable index-numbers being obtained, since the price at which most working people buy may be a measure rather of the spending power of the working classes than of the actual level of retail prices. This naturally leads on to the larger question of what we really mean by changes in the cost of living. Are we simply concerned with changes in the price of food and rent as such, or must we make allowances for changes in the demands of the working classes consequent upon an improved standard of living? Practically, this point is very important in dealing with the question of rent, and I am not satisfied that it is unimportant in dealing with food; but a detailed discussion of it is beyond the scope of this paper.

The collection of family budgets is a necessary stage in the construction of food index-numbers in order to determine the relative importance of, and consequently the weights to be assigned to, the commodities most commonly consumed by the working classes. In 1904 the Board of Trade collected about two thousand such budgets, and have used the results in the calculation of their Retail Food Index-Numbers. Fresh series of family budgets should be periodically collected, as the relative amounts spent on the different articles, and possibly the articles themselves may change in the course of time.

Clearly, the kinds of the different commodities must not, as a rule, be changed during the course of an investigation; for example, Devonshire butter one year must not be compared with Australian butter the next, but it does not necessarily follow, even if this is the case, that the actual quality of the kinds studied will remain constant. Many examples can be given of changes having taken place in the quality of what is, to all intents and purposes, the same kind of article from the consumer's point of view. For instance, during the past twelve years, owing to more scientific methods of thawing and freezing, the quality of the foreign mutton sold in this country has steadily improved; while,

on the other hand, that of foreign beef has gone down, owing to the fact that the supply from North America has practically ceased, and its place has been taken by a poorer quality coming from the Argentine. Since we are solely concerned with any changes that may have taken place in the price that the working woman has to pay for the necessary articles of food, we can ignore the more subtle differences in quality. If, however, the change in quality is sufficiently marked to force the housewife to substitute one kind for another, then we must make a similar substitution in calculating our index-numbers, and change from kind to kind, notwithstanding what has already been said. If, on the other hand, the change in quality is not sufficiently marked, it does not seriously affect our problem, and in this case I should suggest that the index-numbers need not be modified to show such changes in quality, although a note to the effect that they have taken place might be inserted. It may be observed that if we were concerned with the change in the price of articles equally nutritive and equally palatable, these changes would in theory have to be allowed for, although practically it would be an extremely difficult matter.

These suggestions of methods of dealing with changes in quality are admittedly quite tentative, and this subject must receive much more detailed consideration before reliable index-numbers can be obtained.

A special difficulty arises in connection with meat and bacon, owing to the fact that the consumer is able to purchase a variety of different cuts and joints. In constructing index-numbers must the change in the price of all joints be studied, or can a selection be made? It would appear to be unwise to make anything like a small selection of joints, for the following reason: when the wholesale price of meat advances by a small amount, the retailer need not increase the price of all joints, so he naturally selects for this purpose the joints for which there is most demand. Should these particular joints be those selected for inquiry, the price of meat will appear to fluctuate too much and *vice versâ*. If, however, the change in the average price per lb. of all joints sold is used instead, the joints, of course, being kept the same during the investigation, those joints which frequently fluctuate are combined with those which tend to remain constant in price, and the real change in the price of meat as a whole is more likely to be obtained.

The question of the base to be used in calculating index-numbers must now be considered. The interpretation put upon

index-numbers, especially by persons not used to dealing with figures, is often greatly influenced by the base chosen, although the actual percentage increase or decrease over the whole period, and from year to year, is quite independent of the base. If a single year is chosen, and if the figures for that year are not very accurate, all the other index-numbers are, for comparative purposes, affected, and consequently, when the figures are contrasted with index-numbers prepared by other observers, they may appear to differ more markedly than they do in reality in consequence of this error. This question has been dealt with by Dr. A. L. Bowley,[1] Mr. A. W. Flux,[2] and others, and the consensus of opinion seems to be that it is better to choose as a base the average of a number of years as being less subject to error. I should be inclined to choose as a base the average of the whole period, so that the index-numbers for the different years simply measure deviations from the mean of the period studied.

In the accompanying diagram (p. 625) I have plotted three series of general index-numbers of retail food prices for London for the period 1900–1910. These general index-numbers were prepared by combining the index-numbers for the separate commodities, each commodity being weighed according to the extent to which it enters into the consumption of the average working-class family. One series was prepared by the Board of Trade,[3] another by Dr. A. L. Bowley,[4] and a third by myself.[5]

In the first case, the year 1910 has been taken as a base. According to this diagram, it would appear that while Dr. Bowley's index-numbers agree very well with my own for the whole period, those prepared by the Board of Trade were too low from 1900 to 1907. In the second case, I have taken the year 1900 as base, and here it would appear that although again Dr. Bowley's and my own index-numbers agree very well, the Board of Trade figures are too high for the whole period with the exception of the year 1900. In the last diagram the average of the years 1900–1910 has been chosen, and here the three series of figures show the best agreement; from 1901 to 1907 the three series agree very well indeed, but the Board of Trade figure for 1900 is too low, while those for 1907–1910 are too high. The percentage increase over the whole period remains unchanged

[1] *Elements of Statistics.*

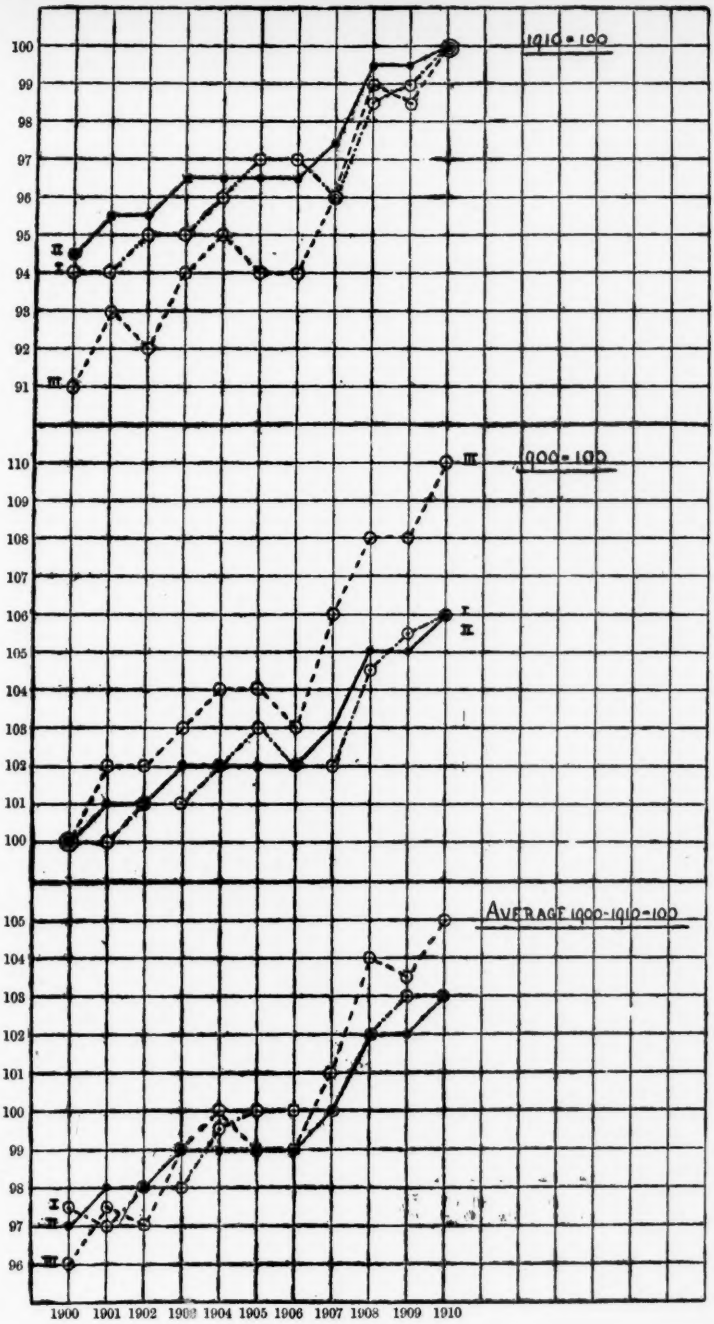
[2] "Modes of Constructing Index Numbers," *Quarterly Journal of Economics*, 1906–1907.

[3] Taken from "Fifteenth Abstract of Labour Statistics."

[4] *Daily News*, October 9th, 1911.

[5] *Journal of the Royal Statistical Society*, Vol. LXXVII.

GENERAL INDEX NUMBERS OF RETAIL FOOD PRICES IN LONDON, 1900–1910.



I. F. Wood's Index Numbers.
II. Dr. Bowley's Index Numbers.
III. Board of Trade Index Numbers.

whichever base is chosen, except for small errors due to approximations, and for the period studied, 1900–1910, amounted to about 6 per cent. according to Dr. Bowley and myself, and from 9–10 per cent. according to the Board of Trade.

These three diagrams will serve to illustrate the following point. When a single year is used as a base and index-numbers prepared by different observers are compared, the actual year selected as a base absolutely determines for which years the different series of figures shall appear to agree; while if the average of the whole period is taken, it is possible to say actually for what years the series differ, since, taking our own particular case, the index-number for any year, simply measure the difference between the level of retail prices for that year and the average for the whole period studied.

TABLE II.—*General Index Numbers of the Retail Price of Food in London, 1900–1910.*

Year.	1910 taken as Base (1910=100).			1900 taken as Base (1900=100).			Average 1900–1910 taken as Base (Average 1900–10=100).		
	Dr. Bowley's Index Numbers.	F. Wood's Index Numbers.	Board of Trade Index Numbers.	Dr. Bowley's Index Numbers.	F. Wood's Index Numbers.	Board of Trade Index Numbers.	Dr. Bowley's Index Numbers.	F. Wood's Index Numbers.	Board of Trade Index Numbers.
1900	94·5	94·0	91·0	100·0	100·0	100·0	97·0	97·5	96·0
1901	95·5	94·0	93·0	101·0	100·0	102·0	98·0	97·0	97·5
1902	95·5	95·0	92·0	101·0	101·0	102·0	98·0	98·0	97·0
1903	96·5	95·0	94·0	102·0	101·0	103·0	99·0	98·0	99·0
1904	96·5	96·0	95·0	102·0	102·0	104·0	99·0	99·5	100·0
1905	96·5	97·0	94·0	102·0	103·0	104·0	99·0	100·0	99·0
1906	96·5	97·0	94·0	102·0	102·0	103·0	99·0	100·0	99·0
1907	97·5	96·0	96·0	103·0	102·0	106·0	100·0	100·0	101·0
1908	99·5	98·5	99·0	105·0	104·5	108·0	102·0	102·0	104·0
1909	99·5	99·0	98·5	105·0	105·5	108·0	102·0	103·0	103·5
1910	100·0	100·0	100·0	106·0	106·0	110·0	103·0	103·0	105·0

This paper has only touched upon the most obvious difficulties encountered in the construction of retail prices index-numbers; but the whole question needs careful consideration if reliable and accurate figures are to be obtained.

FRANCES WOOD

The Working of the Insurance Act.

Report for 1912–13 *on the Administration of the National Insurance Act, Part I. (Health Insurance).* [Cd. 6,907.] 1913. 660 pp. Price 2s. 9d.

First Report on the Proceedings of the Board of Trade under Part II. of the National Insurance Act, 1911. [Cd. 6,965.] 1913. 82 pp. Price 9d.

I.

Opinions may differ as to the merits and probable results of the Insurance Act, but its staunchest advocates must have been a little surprised at the comparative ease with which it was brought into force. A warm tribute of praise must be paid to those to whom this achievement is due. There has not been much active opposition to the Act: violence has been mostly of words. But the technical difficulties were legion. The baldest statement of what has been done is eloquent testimony of the work which must have been accomplished. Only a few years ago there were practically no indications of compulsory insurance, and he who would have prophesied its existence on anything like its present scale would have been ignored as a visionary. It was without precedent in this country, the conditions differing in this respect from those in Germany, where compulsory insurance already existed on a considerable scale when Bismarck launched his schemes. The principle of compulsory deduction from wages was entirely new to a large proportion of the population. A large proportion, also, were ignorant of insurance of any kind. And now practically every wage-earner is insured, compulsory deductions are made from their wages, employers contribute automatically, benefits are distributed, and, outwardly at least, with few exceptions, all this is taking place with a smoothness which might seem begotten of years of experience.

This facility is due to a large extent to the ingenious machinery of the Act, which, with liberal baits, called into play the hot competitive activity of the different societies—friendly, trade union, and, not least, industrial.

Vigorous measures were adopted to scatter knowledge of the Act. For a season the Commissioners poured publicity. 33,000,000 leaflets were distributed. It would have been an interesting study to have ascertained to what extent this torrential activity proved of service.

Foremost among the obstacles to be overcome were the disagreements with the doctors, which, however, were matters for

the Government rather than for the Commissioners. The hive was sufficiently well sweetened to attract most of the doctors. Thus, in England from 80 to 90 per cent. of those in industrial practice are on the panels. In very few places has it been necessary to make exceptional arrangements for general service.

It is interesting that in nearly all places doctors have adopted payment by capitation, that is, a definite sum for each person on their books. Practically in the Manchester and Salford district alone has payment by attendance been adopted, that is, the division of the amount available among the doctors according to services rendered. In Kent, where this latter practice was first adopted, the doctors later gave it up for the capitation system. Payment according to services rendered calls for higher medical organisation than payment by capitation. The experience of Germany suggests that when the British doctors become more organised payment by attendance will be more widely adopted.

It is not possible to do more than refer briefly to some of the other important questions with which the Commissioners have had to deal. As was to be expected, it is with the stragglers of the industrial army, with out-workers and with casuals, that some of the principal difficulties have arisen. A committee, presided over by Sir Ernest Hatch, considered a number of questions touching out-workers, especially the position of married women, and later a very full inquiry was held by Mr. Pope. It was decided that married women should not be excluded from the Act. It was found that in some trades steps had already been taken to displace single women out-workers for married women, on the assumption that the latter would not come under the Act.

The basis on which contributions should be paid formed another difficulty with out-workers. They sometimes earn so little in a week that, if required to pay the weekly rate regardless of earnings, an utterly disproportionate sum might be absorbed for provision against ill-health as compared with what was left for health. To meet this difficulty a system was devised by which, subject to certain conditions, a unit of earnings was fixed as equivalent to a week's work, and contributions were paid accordingly. The Commissioners thus followed a system which had been adopted at Ghent, if I remember rightly, in another connection. The fixing of the units for the different trades must have occasioned much labour.

Many interesting particulars are given respecting casual labour. There were many initial difficulties in the insurance of this class. An employer taking on a man for a day did not

welcome the prospect of having to pay contribution for a week. A labourer, correspondingly, might find a difficulty in getting work unless his card was already stamped. It is stated that in some coal yards employers who used casual labour have found it possible to engage regular workers. In other cases arrangements have been made whereby the liability of a group of employers has been pooled. In some instances, this has been done through the labour exchange—*e.g.*, dock labour at Liverpool and Goole, cloth porters at Manchester. In others, the arrangements have been made privately between the employers or in conjunction with the men's societies—*e.g.*, trimmers and teemers in the North of England, trimmers at Swansea, bakers at Dundee. Arrangements of this kind may form points around which definite schemes for decasualisation may crystallise, though the problem is not so easy of solution as the comfortable doctrines of the armchair sometimes suggest.

It is, of course, too early to make any comments on the results of the Act. But there are already a number of outstanding facts. The number of deposit contributors is much below what was expected. For England, the estimate was from 800,000 to 900,000 : the actual number is 320,000. It was contemplated that deposit contributors would largely be persons broken in health. It appears that, in fact, most persons are deposit contributors from ignorance or misapprehension, or because they cling to a patrician aloofness out of keeping with their plebeian needs.

The deposit contributor was expected to be one of the main difficulties of insurance. The difficulty has largely disappeared : the societies were so eager to swallow members that they did not scrutinise the quality too carefully. It is open to doubt whether the real social problem at the bottom of the whole question has been eased. Indeed, it might be contended that the very scattering of the difficulty will make it more elusive, and render more troublesome any social surgery that may be necessary. And the societies themselves may pay the penalty of their eagerness in the drain on their funds.

The number of the voluntarily insured is very much smaller than was anticipated. This may be due partly to prejudice, partly to ignorance. It has to be remembered also that the compulsory net is cast wide.

The industrial societies have secured a large number of members, thanks particularly to the active agents crying their wares. Of the total 10,300,000 members of approved societies in

England, 4,600,000 belong to friendly societies, 1,200,000 to trade unions, 3,800,000 to industrial societies, and 600,000 to collecting societies.

The Commissioners have been compelled to improvise and to adapt, and they have shown a wealth of initiative and a readiness to change their decrees to meet new circumstances which the rigid conditions of their existence do not often allow to Government departments. The work of the Commissioners, ranging as it does from the skilled artisan to the casual labourer, from the pack shepherd of the border district to the daily charwoman, should throw a flood of light on economic conditions. Their first report does not make easy reading—more "scientific" reports are promised—but it contains a large amount of very interesting material. It was undoubtedly wise to give in this first report a detailed account of the measures which have been taken to initiate the biggest experiment of recent times, an experiment which penetrates deep into the domestic life of the people. We must wait years before we can hope rightly to gauge the results of the experiment, before we can judge to what extent it mitigates and relieves sickness and invalidity, and, still more important, to what extent it prevents these misfortunes and contributes to the upbuilding of a healthier and sturdier race.

II.

The introduction of the scheme of insurance against unemployment was a much simpler task than that of the insurance against sickness and disablement. But in some ways it is the more significant. For compulsory insurance against sickness and disablement there were many precedents; for compulsory insurance against unemployment, on anything approaching the scale attempted in this country, there were none.

About 2,250,000 persons are insured. 25 per cent. of these are members of associations who have made arrangements with the Board of Trade for administering unemployment benefit; 75 per cent. are directly under the administration of the Board of Trade. Less than one-fifth of the total number were previously insured against unemployment.

There have been 560,000 claims for benefit during the six months ended July, 1913. These claims were made by about 400,000 separate persons, a number of persons having claimed more than once. Contributions by workmen and employers are being paid at the rate of about £1,800,000 a year; in addition, the State grants about £600,000 a year. The outgoings for the period under review have been at the rate of about £700,000 a

year. There was a reserve of over £1,600,000 on the 12th July, 1913; it must be remembered that contributions were paid from July, 1912, benefit only from January, 1913.

Under the Act, 10 per cent. of the gross income is to be paid as an appropriation in aid of administrative expenses. There is no estimate in the Report of the actual expenses. They are extremely difficult to estimate because the work is so closely bound with that of the labour exchanges. But it seems desirable that an endeavour should be made to arrive at an estimate, because the cost of administration will be an important factor in judging the scheme.

In addition to the compulsory insurance, the Act provides for payment of subsidies to voluntary insurance. 275 unions, with over 1,000,000 members, came under this provision. Over one-half of the members were also compulsorily insured. A considerable number of compulsorily insured workmen, who were not insured before the passing of the Act, have since become voluntarily as well as compulsorily insured.

Reference can be made to only a few of the interesting topics raised by the Report, which is well prepared. The unemployment claims have been below the actuarial estimate, even allowing for the exceptional industrial prosperity. Unemployed men generally found work readily: during a period for which particulars are given, in 30 per cent. of the claims work was found within the first week of unemployment. The large number of claims, however, despite the great boom in trade, is striking.

A smaller proportion of the compulsorily insured has belonged to the building trade than was expected. This favours the insurance fund, for unemployment is higher in this trade than in others, and claims from workmen in it have been heavier than from workmen in other trades. Claims from the London district have been much higher than from most other districts. This, of course, has been partly because of the large proportion of workmen of the building trades in the metropolis. But the London claims have been heavier in other trades also. The experience of the insurance claims should throw much instructive light on the variations of unemployment in different trades and districts.

Repeated claims for benefit have been made in a large number of instances. In a week at the end of June, 1913, 57 per cent. of the applicants had already claimed once or more times, 29 per cent. had claimed twice or oftener. This brings us face to face with the problem of a residuum of frequently unemployed persons. Of the claims to benefit disallowed, nearly one-half

were rejected because the claimants had not been employed in their trade for the necessary twenty-six weeks.

The Report contains many other matters of deep interest (including detailed information respecting the Liverpool scheme for the decasualisation of dock labour). As stated in the Report, the insurance has been in force for much too short a time to justify conclusions. The industrial sky has been so bright that almost any scheme would have thriven. It is fortunate that the new project was launched at a time when a large reserve would be automatically accumulated. But it is not difficult to see that serious problems will arise. It is open to question whether the method of verifying unemployment will be found adequate when work is not so readily to be obtained. During times of depression large numbers will probably fall out of benefit and continue unemployed, and a demand will arise, a demand the more clamant and insistent because coming from persons who have paid contributions, for some form of special assistance. But even the most enthusiastic advocates of compulsory insurance will not claim that it is more than one step in dealing with the problem of unemployment.

I. G. GIBBON

OFFICIAL PAPERS.

Report of an Enquiry by the Board of Trade into Working-Class Rents and Retail Prices, together with the Rates of Wages in Certain Occupations in the Principal Towns of the United Kingdom in 1912. [Cd. 6,955.] 1913. Pp. lxiii+396. Price 4s. 11d.

THIS Report is valuable in two ways. It contains a mass of useful and interesting information in regard to rent, the retail prices of working people's necessities of life, and the rates of wages in three important trades—building, engineering, and printing. But in addition to all this, the results under each heading are compared with those of the similar enquiry of 1905. In both cases the report covered conditions in eighty-eight towns in the British Islands, and the tables in the present volume provide detailed figures as well as index-numbers and percentage changes for each subject of investigation. In every case, moreover, London and the provincial towns are considered separately.

In regard to the rents of houses, not only are the prevailing amounts given, but the different types of houses are described. In London, whether in the county area proper or beyond, the striking fact is the many instances of sub-letting, though, of course, this is more prevalent in the older areas than in the

newer. In the provinces there appears to be less sub-letting, and the type of house is different from that of London, excepting only the "Newcastle" flat, which is found in the Tyneside district.

Rents in London are very much in excess of those in the provinces. Of all the provincial towns, Newcastle shows the highest rentals and Macclesfield the lowest. If the index-number for London be taken as 100, that of Newcastle is 84 and of Macclesfield 38. Taking the British Isles as a whole, London being left out, we find two groups roughly distinguished, one highly rented and the other with low rents. The Northern counties, the Southern counties, Wales, and Scotland belong to the first division; Yorkshire, Lancashire, Cheshire, the Midland and Eastern counties, and Ireland to the second. In addition to this geographical survey, it is important to notice that there is in general a fall in the level of rents as we pass from the larger to the smaller towns.

But what of the changes since 1905? The Report here is exceedingly useful. The general results concerning rents may be thus summarised. In London rents have on the whole decreased during the last seven years. Of the remaining seventy-seven towns under review, forty-five show increases varying from 1 to over 10 per cent.; in seventeen there was no change; and in the remainder there have been decreases from 1 to 10 per cent. Combining all the details, the Report proceeds to establish the general result of a decrease of 0·3 per cent. for the whole country in the period 1905–1912. That is to say, rents have changed but little.

Far otherwise is the verdict as regards retail prices. Here there has been a material increase in the period between the two enquiries. The commodities that have been listed for the purpose of the report included bread, flour, potatoes, meat, bacon, eggs, milk, butter, cheese, tea, sugar, and coal—a fairly representative group, seeing that it has been estimated that probably three-quarters of working-class expenditure on food is in respect of these items.

One or two facts of interest in connection with these commodities are worthy of note. The cheese largely consumed by the working classes is mostly of the Canadian variety; the eggs are usually of foreign origin; the commonest form of sugar to be met with is white granulated; and while Danish bacon predominates in London and the South-East of England, American bacon is most frequent in the Northern counties and the Midlands.

As in the case of rents, so also in that of general prices,

Macclesfield would appear to be the cheapest town to live in. On the whole, prices are higher in Scotland than even in London, where they are higher than in the rest of the country. But when the rise between 1905 and 1912 is compared for different geographical areas, Lancashire and Cheshire, Wales and Monmouth, and Ireland show the highest mean percentage increase, and the Southern counties the lowest. But the difference is not very great. The only exception is in the case of tea, for which there has been a general fall all over the country.

The cost of clothing shows the same tendency as that of the necessaries of life. On the basis of the 1905 prices = 100, the cost of bespoke clothing in 1912 was 112·1; of ready-made clothing 109·3; and of underclothing 114·6.

Combining rents and retail prices, we find that London has a higher index-number than any other town in the United Kingdom, and next to London comes Croydon. The town standing lowest on the list is Macclesfield. Finally, the percentage of increases between 1905 and 1912 in the towns considered as a whole show the following figures: Rents have increased 1·8 per cent. (this is exclusive of London); retail prices 13·7 per cent.; rents and retail prices combined 11·3 per cent. Details for the various geographical groups are given in the following table :—

PERCENTAGE CHANGES IN RENTS, RETAIL PRICES, AND RENTS AND RETAIL PRICES COMBINED—GEOGRAPHICAL GROUPS.

Geographical Group.	No. of Towns included.	Mean Percentage Increase (+) or Decrease (−) in		
		Rents.	Retail Prices.	Rents and Retail Prices Combined.
London { Middle Zone ...	1	−4·0	+12·0	+ 9·0
London { Inner ,, ...	1	−6·0	+12·0	+ 8·0
London { Outer ,, ...	1	−2·0	+10·0	+ 8·0
Northern Counties and Cleveland	9	+0·7	+13·2	+10·7
Yorkshire (except Cleveland)	10	+1·3	+14·0	+11·5
Lancashire and Cheshire ...	17	+3·4	+15·8	+13·3
Midlands	14	+0·4	+14·4	+11·6
Eastern and East Midland Counties	7	+3·1	+12·4	+10·5
Southern Counties	10	+1·2	+ 9·8	+ 8·1
Wales and Monmouth ..	4	+4·3	+15·0	+12·9
Scotland	10	+1·9	+13·1	+10·9
Ireland	6	+1·2	+15·0	+12·2

The value of these conclusions would have been enormously increased if we had been supplied with a full consideration of the changes in the rates of wages during the period. The three industries dealt with in the Report, though fairly representative, are not in themselves sufficient for any useful comparison with the movement in the cost of living.

But if the Report is not full on this head, it contains (in the Appendix) ample material in reference to the course of prices in the principal foreign countries (France, Germany, the United States, Austria-Hungary, Belgium, Holland, Japan, Russia, Norway, and Italy) and in Canada, New Zealand, and Australia. The following table of index-numbers of food prices is reproduced from this section :—

Country.	1900.	1901.	1902.	1903.	1904.	1905.	1906.	1907.	1908.	1909.	1910.	1911.	1912.
United Kingdom	100	100	101	103	102	103	102	105	108	108	109	109	115
Austria	100	100	99	101	105	108	113	118	118	120	126	128	135
Hungary ...	100	101	102	103	111	122	118	122	128	131	129	137	—
Belgium	100	101	102	113	109	110	112	115	116	120	122	128	132
France	100	100	95	98	99	97	95	100	102	100	104	117	115
Germany ...	100	103	106	105	105	114	118	116	116	124	127	128	130*
Holland	100	100	100	102	103	102	103	105	107	109	115	117	123
Italy	100	100	99	99	97	99	99	101	105	112	114	118	120
Norway	—	100	99	99	97	100	103	108	109	106	108	111	119
Russia	100	104	107	102	104	112	116	130	130	127	116	121	—
United States	100	105	111	111	113	113	117	122	126	133	140	139	—
Japan	100	97	100	108	120	132	127	134	136	132	132	138	—
Canada	100	104	109	106	109	111	115	128	129	133	135	136	151
Australia ...	—	100	109	105	95	101	101	98	106	104	103	103	116
New Zealand	100	101	109	109	102	107	107	112	117	108	110	116	—

* Baden only: figures for the remaining States not yet being available for this year.

M. EPSTEIN

Board of Trade Report on Changes in Rates of Wages and Hours of Labour in the United Kingdom in 1912. [Cd. 7080.] 1913. Price 11½d.

THE Report states that the net weekly amount of the advance in 1912 was £139,000 distributed among 1,818,000 workpeople, that is to say, an average increase of 1s. 6d. a week. "After a period of depression in 1908 and 1909, wages began to rise in sympathy with the improvement in trade and employment, but the movement was somewhat slow until about May, 1912. After that date, however, the movement became more rapid, with the result that the number of workpeople whose wages were reported as increased during 1912 was in excess of that for any previous year, while the aggregate amount of the net weekly increase was exceeded twice only during the past twenty years, namely, in 1900 and 1907—both years of exceptional prosperity." It

appears that, as regards the workpeople covered by the returns dealt with in this Report, about 2½ million workpeople have, since 1893, had their recognised working time per week reduced by nearly 6 million hours. This has been mainly due to legislative changes affecting about half a million underground miners and over one million textile factory operatives.

Board of Trade Report on Strikes and Lock-outs and on Conciliation and Arbitration Boards in the United Kingdom in 1912. [Cd. 7089.] 1913. Price 10½d.

THIS Report covers the period of the National Coal Strike.

Tables Showing for Each of the Years 1900–1912 *the Estimated Value of the Imports and Exports of the United Kingdom at the Prices Prevailing in* 1900. [Cd. 6782.] 1913. Price 3½d.

THE prices of imported foods rose sharply in 1912, while those of imported raw materials again fell. On the whole the prices, both of imports and exports, rose by about 2 per cent. The movements in prices since 1900, on the whole substantially adverse to this country, are shown in the following table :—

—	Average Prices of		
	Imported Articles of Food.	Total Net Imports.	Total Exports of Home Produce.
1900	100·0	100·0	100·0
1901	99·5	96·7	95·2
1902	99·6	95·6	90·8
1903	99·5	96·9	90·7
1904	98·3	97·3	91·8
1905	101·1	97·7	91·6
1906	100·6	101·8	97·1
1907	105·2	106·5	101·9
1908	107·5	102·5	98·0
1909	110·7	103·6	94·3
1910	111·8	109·5	98·4
1911	110·4	106·8	100·1
1912	116·8	108·8	102·0

Report of the Local Government Board, 1912–1913. *Part I. Administration of the Poor Law, the Unemployed Workmen Act, and the Old Age Pensions Act.* [Cd. 6980.] 1913. Price 1s. 4d.

THE number of pensioners in England and Wales on the 28th March, 1913, was 668,646, and the total number in the

United Kingdom was 967,921, made up of 363,811 men and 604,110 women. This is an increase in the number since 1912 of 4 per cent. in England and 2·7 per cent. in the United Kingdom as a whole.

Memoranda in Reference to the Working of the Trade Boards Act. 1913. (H. of C. 134.) Price 3d.

To be reviewed.

First Report on the Proceedings of the Board of Trade under Part II. of the National (Unemployment) Insurance Act, 1911. 1913. [Cd. 6965.] Price 9d.

REVIEWED above (p. 627).

Report of the Select Committee on the Wages and Conditions of Employment of Post Office Servants. 1913. (H. of C. 268.) Price 2s. 4d.

To be reviewed.

Returns of the Capital, Traffic, Receipts, and Working Expenditure of the Railway Companies of the United Kingdom for the year 1912, *with a general report thereon and summary tables for a series of years.* 1913. [Cd. 6954.] Price 1s. 3d.

THE new Act, governing the form of the accounts and statistics furnished by railway companies, has now come into force; and the above is, therefore, the last of these Annual Returns prepared under the old conditions.

Return showing (a) in what foreign countries and British Possessions the Railways have been in whole or part either built or acquired by the Government; (b) the cost of building or acquisition; (c) the financial results. 1913. (H. of C. 287.) Price 7½d.

A VERY useful return relating to the countries of the British Empire and to forty-two foreign countries, prepared by the Commercial Department of the Board of Trade.

Report of the Treasury Committee on the Mode of Issuing the Dollar in the East. 1913. [Cd. 6973.] Price 1½d.

THIS Report deals with the best method of remitting dollars to out-of-the-way places where they are required for payments by the Foreign Office, the War Office, or the Admiralty.

Interim Report of the Royal Commission on Indian Finance and Currency. With one volume of Minutes of Evidence, two volumes of Appendices, and General Index. 1913. [Cd. 7068–7072.] Price ½d. + 2s. 10d. + 2s. 10d. + 2s. 5d. + 6d.

THIS interim report is no more than a covering paper to the evidence and other papers heard and received during the summer. The greater part of the two volumes of appendices is taken up with official papers put in by the India Office in explanation of the existing system.

Review of the Trade of India in 1912–13. 1913. [Cd. 6960.] Price 1s. 1d.

THIS annual statement contains the analysis of foreign trade, taken both at the actual prices and at the prices of former years, which has formerly been published separately. The index-number for Indian rupee prices in 1912 shows that the great fall that took place in prices of food grains between 1908 and 1911 was followed by a considerable rise in 1912. The level of food prices in this year, however, was still below that of 1909. Textiles, on the other hand, in 1912, as in 1911, were much higher than in the three years preceding. Sundry materials were also somewhat higher than in former years. The total result is to bring the index-number, which is a simple arithmetic mean of the prices of thirty-nine commodities, back to what it was in 1908, the general averages for the five years 1908–1912 being 139, 124, 122, 129, and 139 respectively.

Statistical Abstract relating to British India from 1902–3 *to* 1911–12. 1913 [Cd. 7078.] Price 1s. 3d.

Statistical Abstract for the United Kingdom in each of the last fifteen years from 1898–1912. 1913. [Cd. 7022.] Price 1s. 11d.

Index to Consular Reports on Trade and Subjects of General Interest, 1912. [Cd. 7102.] 1913. Price 4½d.

THIS Index serves to increase very greatly the value of Consular Reports, which are very numerous, and do not necessarily come to the notice of all who would be interested in their contents. There is an Appendix giving a list of the Reports indexed and also the price of each Report.

Official Year-Book of the Commonwealth of Australia: Statistics for the period 1901–1912. Melbourne. 1913.

THE sixth issue, prepared by the Commonwealth statistician, Mr. G. H. Knibbs. This very valuable compilation contains a large amount of descriptive matter as well as statistics. In this issue special attention is devoted to labour and industrial statistics.

Erhebung über Arbeitsnachweise im Deutschen Reiche nach dem Stande von Ende, 1912. Berlin. 1913.

THIS is the supplement for June, 1913, to the *Reichsarbeitsblatt*, the Journal of the German Labour Department. It comprises a report on the state of the labour exchanges, private and semi-private, at present existing in Germany. Of the 2,224 labour exchanges which were investigated, 418 stated that they received regular financial assistance from public authorities. The *data*, which it proved possible to obtain, do not appear to be very exact.

CURRENT TOPICS

A CORRESPONDENT writes:—"The meeting of Section F (Economic Science and Statistics) of the British Association at Birmingham (September 11–17) showed an improvement in several ways on its immediate predecessors. There was a very fair muster of economists. Local members took a full part in attendance and discussion, while there were few of those star turns which, though they may attract numbers, disarrange the time-table and discourage debate. On the last day, when the Professor of Finance in Birmingham University read his paper on the Economic Effects of the Panama Canal, the attendance was nearly as full as on the first day. In fact, there was an average attendance of about a hundred members throughout the meeting. The ground covered is indicated by the programme:—

Thursday, September 11.

1. Presidential Address by REV. PHILIP WICKSTEED.
2. Discussion on Trade Unions and Co-Partnership—Papers by DR. CHARLES CARPENTER and MR. JOHN B. C. KERSHAW.
3. PROF. C. H. OLDHAM—The Scientific Study of Business Organisation.

Friday, September 12—Discussion on Inland Waterways:—

1. LORD SHUTTLEWORTH—The Improvement and Unification of Inland Waterways (read by MR. NEVILLE CHAMBERLAIN).
2. SIR JOHN PURSER GRIFFITH—Some Reasons why the State should improve the Canals and Waterways of the United Kingdom.

3. Mr. Frank R. Durham—The Waterways of France, Belgium, and Germany.
4. Mr. R. B. Dunwoody—Inland Waterways in England.
5. Mr. W. M. Acworth—A forward Canal Policy—its economic justification (read by Professor Cannan).

Monday, September 15—Discussion on Prices and the Cost of Living:—

1. Dr. A. L. Bowley—The Relation between the Changes of wholesale and retail prices of Food.
2. Mrs. Frances Wood—The Construction of Index Numbers to show Changes in the principal Articles of Food for the Working Classes.
3. Miss Cecile Mathieson—Working-class expenditure in Birmingham.
4. Mr. W. H. Whitelock—The Industrial Credit System and Imprisonment for Debt.
5. Mr. Leonard Hill—Economics and Food Values.

Tuesday, September 16.

1. Prof. Muirhead—The Economic Order.
2. Dr. W. R. Scott—Modifications of Diminishing Utility.
3. Mr. A. J. Kenny—How far are Mathematical Methods really of use in Economic Science?
4. Mr. Samuel T. Wilson—Some Effects of Compulsion on the Economics of Sickness Insurance.

Wednesday, September 17.

1. Prof. A. W. Kirkaldy—Some of the Economic Effects of the Panama Canal.
2. Mr. F. Tillyard—English Town Development in the Nineteenth Century.
3. Mr. C. Reginald Enock—Human Geography and Industry Planning.

"In the discussion on canals, the canal authorities, statisticians and engineers, occupied the greater part of the time, but the paper by Mr. Acworth (read and replied for by Professor Cannan) was sufficient to maintain the balance. At the close the general sense of the meeting seemed to be that, while the canals might with justice demand the creation of a waterways board having power to enforce through rates and organise the system, the financial propositions should be developed gradually and conditionally upon large contributions to the capital outlay from the areas primarily benefited.

"The discussion on Prices and the Cost of Living showed the high level at which a statistical debate can be maintained in the right hands. Rather unusually, the charts enabled the audience to comprehend better the points under examination. Material such as that supplied by Miss Mathieson was just the kind of contribution most worth having from the locality in which the Association meets. The same applies to the papers on allied subjects by Messrs. Whitelock and Tillyard. Pure theory came up at times, and everybody, it seemed, was heretic—a contrast, truly, to the iron creed of an earlier generation. The President gave the lead, throwing the science back for its origins on to the broad, if slippery, back of psychology, and concluding with a demolition of the well-worn apparatus which has so often served

for an explanation of rent and of the conditions of supply. Cobbett's herring was taken with relish by the audience, female as well as male.

"Next year the Association goes to Australia."

A CORRESPONDENT writes:—Recent economic and social tendencies in France have been responsible for the adoption by the French Government of a somewhat novel policy—the granting of assistance to large families. Among other causes the following have been mentioned as having contributed to bring about this result—the high cost of living, the lack of housing accommodation, the declining birth-rate, and the increase in the period of compulsory military service from two to three years. The law was approved on July 14th, 1913, and its provisions are fairly simple. In the first place, a child is defined as a boy or girl up to the age of thirteen. Every head of a family having to care for more than three children, legitimate or recognised, and being in straitened circumstances, shall be entitled to receive an annual grant in aid of not less than 60 nor more than 90 francs per annum for each additional child beyond the first three. If, however, the children are under the care of their mother by reason of the death or disappearance of the father, the relief shall be given for every child beyond the first. In the same way relief shall be granted for every child beyond the second if the mother has died or disappeared. Finally, children between the ages of thirteen and sixteen for whom either parent has signed a contract of apprenticeship are to be regarded as children under thirteen for purposes of the Act. The amount of the allowance is to be determined in each case by the municipal authority, subject to the approval of the Ministry of the Interior, and is to be paid monthly and in advance. The necessary funds will be contributed by the central government, the communes, and the departments.

ALL this will mean more money for the needs of the State. The increased period of military service will only add to the burden. Consequently, while hitherto France has been one of the Great Powers whose system of taxation did not include income tax, a proposal has now been made to have recourse to this source of revenue. A Bill is at present before the Budget Committee of the Chamber of Deputies, and one or two of the details are interesting. Incomes to be taxed are such as are derived from land and buildings and from securities, callings, professions, or occu-

pations. Every taxpayer whose income is less than 20,000 francs will have the right of deducting from it 1,000 francs for each person dependent upon him, these being either aged parents or relatives over seventy who are without means of their own, or children under sixteen. Incomes under 5,000 francs will be tax free. Those over this amount will be taxed on a graduated system as follows :—

Per cent.	On Incomes between	Per cent.	On Incomes between
1	5,000—10,000 fr.	5¾	30,000— 50,000 fr.
2¼	10,000—15,000 ,,	6	50,000—100,000 ,,
3¼	15,000—20,000 ,,	6¼	100,000—200,000 ,,
4¼	20,000—25,000 ,,	6½	200,000—500,000 ,,
5½	25,000—30,000 ,,	7	over 500,000 ,,

Furthermore, unmarried persons over thirty years of age are to pay on their revenue a surtax of 20 per cent. of the above-mentioned rates.

An Oxford correspondent writes :—"The proposal to establish at Oxford a 'Diploma in Commerce and Economics' for members of the University 'intending to pursue a business career' was at the last moment, and rather unexpectedly, killed by its friends. At a Convocation held on Tuesday, November 11th, Mr. Sidney Ball, speaking on behalf of the promoters of the proposal, explained that the amendment introduced into the statute by Congregation limiting the Diploma to candidates who had taken the B.A. degree had rendered the statute unworkable and made it a contradiction in terms. The character of the proposal had been completely altered, and it would be difficult, if not impossible, to adapt the original framework of the statute to what was essentially a new proposal. It was a proposal, moreover, which would limit the Diploma to an almost negligible quantity of candidates, while the teaching required for the Diploma course would cost the University a very considerable annual sum. The Diploma was devised in response to one of the suggestions made in the Chancellor's letter on the *Principles and Methods of University Reform*, though the actual proposal was formed on rather less comprehensive lines than the Chancellor himself had indicated. It cannot be said that the proposal commended itself to a wide section of the University : it was generally felt that the liberal education provided by the ordinary courses of the University was in itself the best training for business as for other professions, and that, in any case, it was difficult to devise a

course which would really fall within the proper limits of University teaching. On the other hand, the active opponents of the statute were not numerous, and had so far failed to make any impression on the fortunes of the statute, that, but for its friends coming to their rescue at the eleventh hour, they would hardly have availed to throw it out. The rejection of the present statute does not therefore mean so much the abandonment of the proposal as its reconsideration. In the meanwhile the existing Diploma in Economics and Political Science provides an excellent basis for further development on lines specially appropriate to 'persons intending to pursue a business career,' and probably this is the best and safest line of advance, more particularly as the Diploma is allowed to count for the purposes of a degree."

"In this connection, attention may be called to the work of the Oxford Social and Political Studies Association, of which Mr. Sidney Ball is chairman, Professor W. G. S. Adams secretary, and Professor Geldart treasurer. It has recently started a scheme of training for social work, intended primarily for students who have made, or are making, a study of social and economic theory and history, such as is provided by the diploma course in economics and political science. The course of training consists of two parts: first, the study and observation at Oxford, for a period of not less than three terms, of the organisation and working of certain local institutions such as the City Council, the Labour Exchange, the Charity Organisation Society, and the Poor Law Guardians; and second, an inquiry of a specified character carried out in vacations elsewhere than at Oxford, and a written report on its result. During the past term a series of public lectures have been given at St. John's College by well-known experts on various departments of social and civic work. Great stress is laid upon clinical work. This term, for instance, students have paid visits to some municipal schools, as well as to meetings of the City Council and of the Poor Law Guardians."

An association has been formed in Canada, under the title of the Canadian Political Science Association, as "a national society for the full and free discussion of Canada's political and economic and social problems." Similar organisations in the United States, where they have played a notable part for a quarter of a century past, include many Canadians among their members. In December, 1912, therefore, advantage was taken of the fact that an unusually large number of Canadians were in attendance

at the Boston meeting of the American Economic Association, to discuss the organisation of a Canadian society. The first annual meeting was held at Ottawa early in September, when numerous papers were read on the aims of the Association and on various Canadian economic problems. Prof. Adam Shortt, of Ottawa, has been elected as the first President, Prof. James Mavor, of Toronto, as a Vice-President, and Prof. O. D. Skelton, of Kingston, as Secretary-Treasurer. Dr. James Bonar and Prof. G. I. H. Lloyd are amongst the members of Council.

Appointments, etc.—Professor S. J. Chapman has gone to South Africa at the invitation of the Government of the Union of South Africa to act as Chairman of a Commission which is to inquire into wages, working hours, and cost of living in various towns, and also into the question of a minimum wage. The Commission was primarily appointed on account of the recent troubles on the Rand, but it is also visiting a number of other districts, including Pietermaritzburg, Durban, East London, Alice, and Port Elizabeth. Professor Chapman left England in September, and expects to return about the middle of January.

Mr. C. J. Hamilton, who was Secretary to the Royal Economic Society from 1906 to 1912, has been appointed to the Minto Chair of Economics in the University of Calcutta. Mr. Hamilton has been acting as Lecturer in Economics at "Wren's," and held last year the Dunkin Lectureship at Mansfield College, Oxford.

RECENT PERIODICALS AND NEW BOOKS.

The Quarterly Review.

OCTOBER, 1913. *The Financial Difficulties of Federalism.* EDGAR CRAMMOND. *The Vagaries of Recent Political Economy.* PROF. J. S. NICHOLSON. A review of recent works, especially Mr. Wicksteed's "Commonsense of Political Economy," and Prof. Pigou's "Wealth and Welfare," which are criticised adversely. *Indian Progress and Taxation.* LORD CROMER. *Profit-sharing.* PROF. W. J. ASHLEY. A study of the Board of Trade Report (1912), and other recent works.

The Nineteenth Century.

DECEMBER, 1913. *A Minimum Wage for Agriculture.* PROF. A. C. PIGOU.

Economic Review.

OCTOBER, 1913. *On some Fundamental Notions of Economics.* J. A. SMITH. A criticism of Marshall's definition of wealth. Prof. Smith would prefer to define an "economic good" as being "whatever is the end or aim of non-ethical volition." *The Ownership of Capital.* SIR BENJAMIN BROWNE. Brief reflections on the relations of capital and labour. *The Census of Production and Labour Propaganda.* J. C. PRINGLE. *Old Age Pensions.* C. F. ROGERS. Illustrated by C.O.S. Cases. *Economic Conditions in North-West Canada.* PROF. HUMFREY MICHELL.

Bankers' Magazine.

OCTOBER, 1913. *Callable Capital in Banks.* A discussion of the wisdom of reducing the uncalled liability in English Joint-Stock Banks.

NOVEMBER, 1913. *Report of Bank of the Netherlands,* 1912–1913.

DECEMBER, 1913. *Hongkong and Shanghai Banking Corporation.* The opening of this bank's new London office is made the occasion of some account of its progress.

Women's Industrial News.

OCTOBER, 1913. *The Case of the Sub-Postmaster's Assistant.* MRS. BERNARD DRAKE. *Labour Laws for Women and Children at Home and Abroad.* ANNE B. PAGE. A synopsis of the provisions of the laws of various countries.

Clare Market Review.

NOVEMBER, 1913. *The Telegraph Messenger and the Vanboy.* N. B. DEARLE. On some attempts to diminish "blind alley" labour. *Some Branches of the British Library of Political Science. VII. The United States Government Publications.* H. A. FUNNELL.

Liverpool Economic and Statistical Society.

TRANSACTIONS, 1912–13. *Social Statistics of Netterfield Municipal Ward (Liverpool).* F. G. D'AETH. *The Housing Problem.* C. A. SHERLOCK. *The Problem of Federal Finance.* EDGAR CRAMMOND.

The Eugenics Review.

JULY, 1913. *The effect of economic conditions on the birth-rate.* W. C. MARSHALL. *French Commission on Depopulation.* H. ONSLOW.

OCTOBER, 1913. *Depopulation and Eugenics.*—I. LUCIEN MARCH.

International Review of Commerce and Industry.

DECEMBER, 1913. This is the first issue of a new monthly (price 2*s.* a number, or £1 1*s.* a year), under the editorship of Mr. T. Swinborne Sheldrake. Its object is to deal "with international commerce and industry," and it will be primarily written "for the principals of great commercial firms having business interests in all parts of the world." Personal paragraphs and disguised advertisements are to be rigorously excluded. Most of the articles are short. *Monthly Notes on Commercial Conditions. Commerce and the Universities.* W. J. ASHLEY. A suggestion to English business men that "the time has now come when it will be worth while, even for them, to take 'higher commercial education' a little more seriously." *Trade Routes as they will be affected by the Panama Canal.* W. L. LIVINGSTON. *Oil Fuel.* A. J. LIVERSEDGE.

Quarterly Journal of Economics (Harvard).

AUGUST, 1913. *Marginal Utility and Marginal Disutility as ultimate Standards of Value.* C. E. PERSONS. Utility and Disutility are regarded as alternative standards. *The Commodity Clause Legislation and the Anthracite Railroads.* ELIOT JONES. *Original Cost versus Replacement Cost as a Basis for Rate Regulation.* H. V. HAYES. By a former chief engineer of the American Telephone and Telegraph Company. *The Marginal Productivity versus the Impatience Theory of Interest.* HARRY G. BROWN. A criticism of Prof. Fisher's "Impatience," or "Time Preference" Theory. *Pigou's Wealth and Welfare.* ALLYN A. YOUNG. *Railway Rates and Joint Costs.* PROFS. PIGOU and TAUSSIG. A continuation of this controversy.

The American Economic Review (Boston).

SEPTEMBER, 1913. *A Classification of Pools and Associations based on American Experiences.* W. S. STEVENS. With interesting

examples. *Possible Complications of the Compensated Dollar.* J. M. CLARK. By a friendly critic. *Monopoly and Competitive Prices.* E. E. AGGER. A criticism of a pamphlet by Prof. Hicks. *The Impatience Theory of Interest.* IRVING FISHER and H. R. SEAGER. The continuation of a controversy.

Political Science Quarterly (New York).

SEPTEMBER, 1913. *Regulation of State Taxation.* F. J. GOODNOW. *Development of Syndicalism in America.* LOUIS LEVINE.

Annals of American Academy (Philadelphia).

SEPTEMBER, 1913. A series of articles on *The Negro's Progress in Fifty Years.*

Journal of Political Economy (Chicago).

OCTOBER, 1913. *Money and Prices.*—I. J. D. MAGEE. "A Statistical Study of Price Movements." *An Analysis of the Crisis Cycle.* MINNIE THROOP ENGLAND. The author's general conclusion is that the primary movements are: increased promotion activity, expansion of credit, rise of prices; decreased activity in promotion, contraction of credit, fall of prices. *The Recent History of Immigration and Immigration Restriction.* B. F. HALL.

Bulletin of the U.S. Bureau of Labour (Washington).

No. 116. *Hours, Earnings, and Duration of Employment of Wage-earning Women in Selected Industries in the District of Columbia.*

No. 119. *Working Hours of Women in the Pea Canneries of Wisconsin.*

No. 120. *Hygiene of the Painters' Trade.*

No. 121. *Sugar Prices from Refiner to Consumer.* Discusses, chiefly with reference to New York City, the relation between the price of raw sugar and the price to the consumer for granulated sugar, and the cost added to this price as it passes through various hands from the refiner to the consumer.

No. 122. *Employment of Women in Power Laundries in Milwaukee.*

No. 123. *Employers' Welfare Work.* An account of what is done for their employees by various American firms.

No. 124. *Conciliation and Arbitration in the Building Trades of Greater New York.*

No. 125. *Retail Prices,* 1890 *to April,* 1913.

No. 128. *Wages and Hours of Labour in the Cotton, Woollen, and Silk Industries,* 1890 *to* 1912.

No. 129. *Wages and Hours of Labour in the Lumber, Millwork, and Furniture Industries,* 1890 *to* 1912.

No. 131. *Union Scale of Wages and Hours of Labour,* 1907 *to* 1912.

No. 132. *Retail Prices,* 1890 *to June,* 1913.

Revue d'Economie Politique (Paris).

SEPTEMBER-OCTOBER, 1913. *Art technique et Economie politique.* E. SCHWIEDLAND. *Comment expliquer les mouvements de la*

population humaine. C. TURGEON. Concluded. *Les Causes démographiques de l'expansionisme colonial italien.* R. MICHELS.

Journal des Economistes (Paris).

AUGUST, 1913. *Définition, caractère et indices des crises.* YVES GUYOT. *Le système monétaire de l'Argentine et les organes de la circulation.* G. LAFOND. *Les premiers résultats de la nouvelle loi anglaise d'assurance sociale.* M. BELLOM. Continued in September.

SEPTEMBER, 1913. *La Marine marchande grecque.* A. ANDRÉADÈS. Continued in October. *La Serbie au lendemain de la guerre.* A. MUZET.

OCTOBER, 1913. *M. Emile Levasseur.* A. DESCHAMPS. *Les Finances des villes au début du xx^e siècle.* P. LÉRIS. With reference to France.

NOVEMBER, 1913. *Le Ministère des Terres et M. Lloyd George.* YVES GUYOT. *Le Conflit économique franco-allemand.* MAURICE AJAM.

Revue Economique Internationale (Brussels).

AUGUST, 1913. *L'Evolution des lois Européo-Américaines en matière d'accidents du travail.* P. PIC. *L'Organisation du Système monétaire en Turquie.* A. ILLITCH. A summary account of the existing position, and of what reforms have been proposed. *L'Industrie cotonnière en Italie.* E. KRUMME. *Les cours du fret en* 1912. P. HERMITE.

SEPTEMBER, 1913. *La Coopération en Angleterre.* CLAUD W. MULLINS. *Les Associations coopératives en Allemagne.* H. CRÜGER. *Le mouvement ouvrier jaune.* CL. HEISS. *Enquête sur le mouvement de quelques prix en Espagne pendant un siècle.* ANDRÉ BARTHE.

OCTOBER, 1913. *Les nouveaux progrès de l'Emigration Britannique.* RENÉ GONNARD. *Les Réformes agraires et l'évolution des classes rurales en Russie.* P. CHASLES. *Cinquante années de la vie d'une banque viennoise* (1863–1913). CH. MORAWITZ. An account of one of the earliest English foreign banks—the Anglo-Austrian Bank.

Archiv für Sozialwissenschaft und Sozialpolitik (Tübingen).

SEPTEMBER, 1913. *Die Bureaukratisierung und die gelbe Arbeiterbewegung.* ALFRED WEBER. *Der Syndikalismus in England.* (60 pp.) C. K. OGDEN. A substantial account of current English opinion. *Die allgemeine Teuerung im Lichte der Nationalökonomie.* LUDWIG VON MISES.

Schmoller's Jahrbuch (Munich).

PART 4, 1913. *Die Emissionsstatistik in Deutschland und einigen ausländischen Staaten.* M. MARX. A useful collection of material relating to new issues of capital. *Die Noten der Niederländischen Bank. Ein Beitrag zur Frage der Ausgabe kleiner Noten.* C. EISFELD. *Zur Frage der Lebenshaltung des Mittelstandes.* A. GÜNTHER. *Die Konsumvereinswesen in Deutschland.* W. TILS.

Jahrbücher für Nationalökonomie und Statistik (Jena).

MAY, 1913. *Die Leistungsfähigkeit und andere Gesichtspunkte bei Bemessung von Geldleistungen.* (73 pp.) HERBERT CONRAD. *Wirtschaftsverhältnisse und Wirtschaftsbeziehungen Indiens insbesondere zu England und Deutschland.* DR. KREUZKAM. A slight treatment of the obvious statistics.

JUNE, 1913. *Der Rückgang der Geburten als soziales Problem.* H. FÜRTH. *Stand und Leistungen der französischen Städtestatistik.* J. MÜLLER. *Die Brotpreise in Berlin im Jahre* 1912. H. GURADZE.

JULY, 1913. *Die Marxsche Grundrententheorie. Ein Beitrag zur Dogmengeschichte der Grundrente.* G. ALBRECHT. *Die Arbeitszeit in der Grosseisenindustrie.* E. WISKOTT.

AUGUST, 1913. *Die Entwicklung des deutschrussischen Getreideverkehrs unter den Handelsverträgen von* 1894 *und* 1904. F. BECKMANN. *Wirtschaft und Mode.* A. ELSTER. *Die Entwicklung des Preisniveaus und des Getreidebedarfs in Deutschland und England in den letzten Dezennien.* A valuable collection of tables.

SEPTEMBER, 1913. *Der Subjektive Wert als Grundlage der Zinstheorie Böhm-Bawerks.* OTTO CONRAD. *Die Messe in Nischny-Nowgorod.* VLADIMIR SEEGER. *Englische Wirtschaftsgeschichte.* G. BRODNITZ. A critique of recent English contributions to English economic history.

OCTOBER, 1913. *Privatwirtschaftslehre, Volkswirtschaftslehre, Wertwirtschaftslehre.* (50 pp.) KARL DIEHL. A discussion of the fields into which it is usual in Germany to divide economics.

NOVEMBER, 1913. *Vermisste Folgen der deutschen Sozialversicherung.* A. FISCHER. *Das Wesen der Wirtschaft und der Ausgangspunkt der Nationalökonomie.* (50 pp.) ROBERT LIEFMANN. A further contribution to the discussions of Scope and Method, which are now occupying so large a place in German economic periodicals.

Annalen für Soziale Politik und Gesetzgebung (Berlin).

PARTS 1 AND 2, VOL. III., 1913. *Fortgang und Tragweite der internationalen Arbeiterschutzverträge.* STEPHAN BAUER. *Zur Methode und Technik der Haushaltungsstatistik.* (75 pp.) WALTER SCHIFF. An important study in statistical method. *August Bebel als Sozialpolitiker.* HEINRICH BRAUN.

Giornale degli Economisti (Rome).

SEPTEMBER, 1913. *Numeri Indici delle Condizioni economiche d'Italia.* S. MORTARA. While admitting that the impressions of the economist about the progress of a country may be as valuable as an average of index numbers, the eminent statistician has framed several such compound measures, utilising some seventeen indices of progress (population, foreign trade, output of coal, &c.), and variously combining these elements with weights *inverse* to *variability*. The measures agree satisfactorily. *Sulla dottrina matematica dalla dipendenza reciproca dei fatti economici.* DOM. G. BERARDI. A

philosophic disquisition. *Per un Sistema d'imposte sul reddito consumato.* N. TREVISONNO. A criticism of Professor Einaudi's recent advocacy of equality in taxation. (Turin: Bona, 1912.)

OCTOBER. *Il nuovo regime delle borse.* G. DEL VECCHIO. Referring to the new regulations of the Italian money-market. *L'importa unica sui Consumi non necessari.* U. RICCI. On the postulate of equality in taxation and the consequence drawn from it by Fisher, Einaudi, Prato, and others. *Sulla Mortalità degli invalidi.* F. INSOLERA. A statistical study.

La Riforma Sociale (Turin).

AUGUST-SEPTEMBER, 1913. *La questione del Cambrio.* G. DEL VECCHIO. A searching enquiry into the relation between the state of the exchanges and the amount of the circulation during recent years in Italy. *I prezzi delle merci in Italia nel* 1911. ACHILLE NECCO. Prices in Italy for 1911 are compared with prices for other years and in other countries; showing a general rise since last century.

OCTOBER–NOVEMBER. *Il Canale di Panama.* A. GEISSER. A history of the construction and estimate of its consequences. *Di una nuova proposta per rendere piu stabile il valore della moneta.* A. GRAZIANI. A criticism of Prof. Irving Fisher's project. *La produzione solfifera Siciliana.* FELICE VINCI. *La valorizzazione del Caffé nel Brasile.* E. DE PAOLI.

De Economist (The Hague).

SEPTEMBER, 1913. *De Curaçaosche Bank.*—III. G. J. FABIUS. Continued in October and November.

NOVEMBER, 1913. *De oudste Nederlandsche bevolkingsstatistiek.* W. S. UNGER.

NEW BOOKS.

English.

A Unionist Agricultural Policy. London: John Murray. 1913. Pp. 31. 6*d*. net.

["By a group of Unionists."]

ESTEY (J. A.). Revolutionary Syndicalism. London: P. S. King. 1913. Pp. xxxii + 212. 7*s*. 6*d*. net.

[With an introduction by Mr. L. L. Price. An attempt "to explain the theory and practice of the syndicalist movement in contemporary socialism." To be reviewed.]

GIFFEN (SIR ROBERT). Statistics. London: Macmillan. 1913. Pp. xiii + 485. 12*s*. net.

[This posthumous work, written about the years 1898–1900 and left in a somewhat unfinished state, has been edited by Mr. Higgs and Mr. Yule. To be reviewed.

GILL (CONRAD). The Naval Mutinies of 1797. Manchester: University Press. 1913. Pp. xix + 412. 10*s*. 6*d*. net.

[Of interest to economists on account of the close resemblance of these mutinies to the modern strike. Reviewed above.]

GORING (CHAS.). The English Convict: a statistical study. London: H.M. Stationery Office. 1913. Pp. 440. 9*s*.

[This elaborate study by the Deputy Medical Officer at the Parkhurst Prison has been published officially. With the assistance of other authorities, statistics have been collected during the last 10 years giving accurate biometrical measurements of a large number of prisoners convicted of similar offences. The results are chiefly negative. Contrary to what has been maintained by some writers, the author comes to the conclusion that, "as individuals, criminals possess no characteristics, physical or mental, which are not shared by all people."]

GREENWOOD (ARTHUR). The Health and Physique of School Children. London: P. S. King. 1913. Pp. xv + 96. 1*s*. net.

[A publication of the Ratan Tata Foundation.]

HAWTREY (R. G.). Good and Bad Trade: an inquiry into the causes of trade fluctuations. London: Constable. 1913. Pp. viii + 279. 6*s*. net.

[This is a theoretical discourse in which great stress is laid on the fluctuations in the supply of money credit. Reviewed above.]

HOLLAND (BERNARD). The Fall of Protection, 1840–1850. London: Arnold. 1913. Pp. xi + 372. 12*s*. 6*d*. net.

[To be reviewed.]

JOSEPH (LEOPOLD). The Evolution of German Banking. London: C. and E. Layton. 1913. Pp. 124. 3*s*. 6*d*. net.

[Four lectures delivered at the London School of Economics by the Manager of the London Office of the Swiss Bankverein. To be reviewed.]

KENNEDY (WILLIAM). English Taxation A.D. 1640–1799: an Essay on Policy and Opinion. London: G. Bell. 1913. Pp. ix + 199. 7*s*. 6*d*. net.

[Based on historical research carried out during the author's tenure of the Shaw Research Studentship at the London School of Economics. To be reviewed.]

KNOOP (DOUGLAS). Outlines of Railway Economics. London: Macmillan. 1913. Pp. xvi + 274. 5*s*. net.

[To be reviewed.]

LEHFELDT (R. A.). The South African National Debt. Cape Town: S. A. Association for the Advancement of Science. 1913. Pp. 11.

[An interesting pamphlet, reprinted from the *South African Journal of Science*, which contains some novel suggestions as to the treatment of Sinking Funds by developing countries, which are continually borrowing more for new capital expenditure than they can pay off in respect of former loans.]

LLOYD (G. I. H.). The Cutlery Trades. London: Longmans. 1913. Pp. xvi + 493. 12*s*. 6*d*. net.

["An historical essay in the economics of small-scale production." To be reviewed.]

MACKAY (THOMAS). The Dangers of Democracy: Studies in the Economic Questions of the Day. London. 1913.

[A selection, edited with an Introduction by Sir Arthur Clay, of the articles contributed to the *Quarterly Review* by the late Mr. Thomas Mackay between the years 1894 and 1909. To be reviewed.]

O'FARRELL (HORACE HANDLEY). The Franco-German War Indemnity and its Economic Results. London: Harrison and Sons. 1913. Pp. x + 80.

[Published, with an introduction by Viscount Esher, by the Garton Foundation. A criticism of one of Mr. Norman Angell's contentions in *The Great Illusion*. To be reviewed.]

REDFERN (PERCY). The Story of the C.W.S.: the Jubilee History of the Co-operative Wholesale Society, 1863–1913. Manchester: The Co-operative Wholesale Society. 1913. Pp. viii + 439. 3*s*. 6*d*. net.

["The following pages . . . go beyond a formal record of events in C.W.S. history. They attempt a history of the principles also, viewed in relation to the larger world that environed their development." To be reviewed.]

SARKAR (PROF. JADUNATH). Economics of British India. Third edition, enlarged and partly rewritten. Calcutta: M. C. Sarkar and Sons. 1913. Pp. xii + 324. 5*s*. net.

[An earlier edition of this small text book was reviewed in the ECONOMIC JOURNAL in September, 1911.]

SPALDING (W. F.). Foreign Banking Appointments. London: The Author. (22, Lightcliffe Road, Palmer's Green.) 1913. Pp. 28. 1*s*. net.

[This is described as an epitome of the conditions governing entry into the principal foreign and colonial banks, with some account of the prospects offered. It deals also with such questions as the cost of living, and should prove exceedingly useful for its purpose.]

The Land: the Report of the Land Enquiry Committee. Vol. I. Rural. London: Hodder and Stoughton. 1913. Pp. lxxxiii + 498. 1*s*. net.

[The Report of Mr. Lloyd George's unofficial Committee, with an introduction by Mr. Dyke Acland, and an Historical Outline by Dr. Gilbert Slater. To reviewed.]

The Year-Book of Social Progress for 1913–14. London: Thomas Nelson. 1913. Pp. 595. 2*s*. net.

["Being a summary of recent legislation, official reports, and voluntary effort, with regard to the welfare of the people." The second issue of this very cheap annual.]

WEBB (M. DE P.). Money Power for India. Woking: The Oriental Institute. 1913. Pp. 25.

[Reprinted from the *Asiatic Quarterly Review*. Mr. Webb advocates a Gold Mint and a Gold Currency for India, partly for their own sake, partly in order to keep down the rise of prices due to a superfluity of gold elsewhere. He is in favour of a State Bank for India as distinguished from a Central Bank mainly in private hands.]

WHELPLEY (JAMES DAVENPORT). The Trade of the World. London: Chapman and Hall. 1913. Pp. 436. 9*s*. net.

[By an American writer, with numerous illustrations. To be reviewed.]

WILLIAMS (ANEURIN). Co-Partnership and Profit-sharing. London: Williams and Norgate. 1913. Pp. 256. 1*s*. net.

[In the *Home University Library*. To be reviewed.]

WILLIAMSON (J. A.). Maritime Enterprise, 1485–1558. Oxford: The Clarendon Press. 1913. Pp. 416. 14*s*. net.

[To be reviewed.]

American.

DEIBLER (F. S.). The Amalgamated Wood Workers' International Union of America. Madison, Wisconsin. 1912. Pp. 211. 40 cents.

["A historical study of Trade Unionism in its relation to the development of an industry." A doctorial thesis, being No. 511 of the *Bulletin of the University of Wisconsin*.]

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["An analysis of the evolution and nature of business organization in the United States and a tentative solution of the Corporation and Trust Problems." To be reviewed.]

LAUBER (ALMON WHEELER). Indian Slavery in Colonial times within the present limits of the United States. New York: Columbia University. 1913. Pp. 352. 12*s*. net.

[*Columbia University Studies*, LIV–3.]

MITCHELL (WESLEY CLAIR). Business Cycles. Berkeley: University of California Press. 1913. Pp. xviii + 610. $5.

[A very large quarto, being volume iii of the *Memoirs of the University of California*. "This book offers an analytic description of the complicated processes by which seasons of business prosperity, crisis, depression, and revival come about in the modern world. The materials used consist chiefly of market reports and statistics concerning the business cycles which have run their course since 1890 in the United States, England, Germany, and France." To be reviewed.]

MUENSTERBERG (HUGO). Psychology and Industrial Efficiency. Boston: Houghton Mifflin. 1913. Pp. vii + 321. $1.50.

[To be reviewed.]

French.

AFTALION (ALBERT). Les Crises périodiques de Surproduction. Vol. I. Les variations périodiques des prix et des revenue: les théories dominantes. Vol. II. Les mouvements périodiques de la production: Essai d'une théorie. Paris: Marcel Rivière. 1913. Pp. xii + 317 + 418. Fr. 16.

[To be reviewed.]

CORNÉLISSEN (CHRISTIAN). Théorie de la Valeur, avec une réfutation des Théories de Rodbertus, Karl Marx, Stanley Jevons, et Böhm-Bawerk. Paris: Giard & Brière. 1913. Pp. 480. Fr. 10.

["Second Edition, thoroughly revised." To be reviewed.]

DORE (VALENTINO). Le Marché des Céréales d'Anvers. Rome. 1913. Pp. vi + 64.

[A publication of the *Institut International d'Agriculture.*]

ILITCH (ALEXANDRE). Le Chemin de fer de Bagdad au point de vue Politique, Economique et Financier, ou l'Expansion de l'Allemagne en Orient. Brussels: Misch & Thron. 1913. Pp. 239.

[To be reviewed.]

TOUGAN-BARANOWSKY (M.). Les Crises industrielles en Angleterre. Paris: Giard & Brière. 1913. Pp. vii + 476. Fr. 12.

[Translated from the second Russian edition by J. Schapiro, and revised and augmented by the author. To be reviewed.]

German.

ADLER (KARL). Bankpolitische Aufsätze. Munich: Duncker & Humblot. 1913. Pp. 38. M. 1.

[A reprint of two essays.]

ENGELBRECHT (ERWIN). Die Agrarverfassung des Ermlandes und ihre historische Entwicklung. Munich: Duncker & Humblot. 1913. Pp. viii + 256. M. 6.50.

[Schmoller's *Forschungen*, No. 169.]

GERLACH (K. A.). Theorie und Praxis des Syndikalismus. Munich: Duncker & Humblot. 1913. Pp. 22. M. 0.60.

KULEMANN (W.). Die Berufsvereine. Erste Abteilung: Geschichtliche Entwicklung der Berufsorganisationen der Arbeitnehmer und Arbeitgeber aller Länder. Vols. 4, 5, 6. Berlin: Leonhard Simion. 1913. Pp. xxiv + 560 + vii + 551 + vii + 336. M. 30.

[Second revised edition of *Gewerkschaftsbewegung*, which was reviewed in the ECONOMIC JOURNAL, vol. x, p. 218. The first three volumes of the present edition were reviewed, vol. xix, p. 271. To be reviewed. The fourth volume deals with Great Britain and France and the countries of Northern Europe; the fifth volume with Southern Europe; and the sixth volume with other countries.]

KUMPMANN (KARL). Die Reichsarbeitslosenversicherung. Tübingen: J. C. B. Mohr. 1913. Pp. viii + 150. M. 3.

[To be reviewed.]

LEXIS (WILHELM). Allgemeine Volkswirtschaftslehre. Second revised edition. Berlin: Teubner. 1913. Pp. 256. M. 7.

[The first edition was reviewed in the ECONOMIC JOURNAL for March, 1912, p. 75.]

MANN (F. K.). Die Vorgeschichte des Finanzsystems von John Law. Munich: Duncker & Humblot. 1913. Pp. 65.

[Reprinted from Schmoller's *Jahrbuch*.]

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["Eine Abhandlung über ihren Einfluss auf den Industriebetrieb unter eingehender Berücksichtigung des Apparatwesens."]

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[To be reviewed.]

SELLA (EMANUEL). Der Wandel des Besitzes. Versuch einer Theorie des Reichtums als Organismus. Leipzig: Duncker & Humblot. 1912. Pp. 98. M. 2.50.

[Authorised translation from the Italian by Dr. Bluwstein.]

WEHBERG (HEINRICH). Die Bodenreform im Lichte des humanistischen Sozialismus. Munich: Duncker & Humblot. 1913. Pp. xii + 170. M. 5.

[On the occasion of the twenty-fifth anniversary of the foundation of the *Bund Deutscher Bodenreformer*. To be reviewed.]

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[To be reviewed.]

WILDEN (JOSEF). Neue Wege der Gewerbeförderung. Munich: Duncker & Humblot. 1913. Pp. 69. M. 2.

Italian.

SCHERMA (G.). Studio nel carattere economico della cooperazione. Palermo: Fiorenza. 1913.

STEFANI (A. DE). Velocità e giacenze delle monete. Venice: Ferrari. 1913.

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